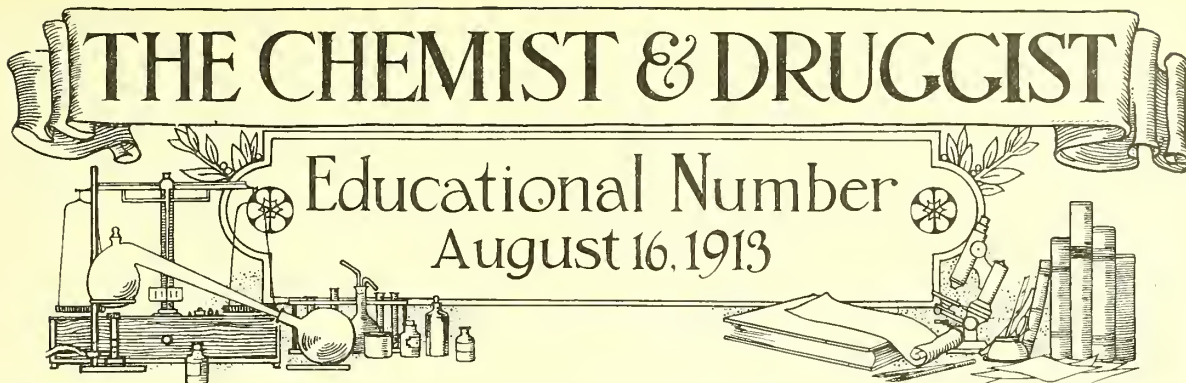




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A Weekly Journal of Pharmacy and the Drug and Chemical Trades.
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Educational Matters

are dealt with fully in this issue, which forms a complete guide to those desirous of entering pharmacy, medicine, dentistry, veterinary surgery, and analytical and scientific careers (pp. 53 to 74).

The practice of pharmacy, being of greatest importance to our readers, is dealt with first, and the conditions of entry in Great Britain and Ireland (pp. 53 and 59). The scope of the Preliminary examination is shown, and, as helpful to those in doubt, contributors' views are given regarding apprenticeship and students' work (p. 54). The experiences of a chemist at the Minor last month are given to show the ground covered by the qualifying examination (p. 55).

The scholarships, prizes, and appointments of interest to chemists are given on pp. 72 and 74. Students' books and the experiences of the Senior Bell scholar and the Fairchild scholar conclude the section.

The Medical Section includes the experience of a chemist who afterwards became a doctor (p. 65), notes of various diplomas and certificates (p. 66), and a guide to the medical schools (p. 68).

SUMMARY.

The more notable items only are dealt with.

Articles and Communications.

We indicate the remedy for the present scarcity of chemists' assistants (p. 50).

A further article on the "Business Side" deals with the question of window and counter display (p. 34).

The regulations in force in Hungary, Italy, and Germany regarding the repetition of prescriptions containing heroic remedies are given on p. 34.

Mr. T. E. Wallis' paper on "The Structure of the Soya Bean," which was contributed to the British Pharmaceutical Conference, is given on p. 46.

"Xrayser II." deals with the private discussions of public bodies, the question of local formularies, dispensing arrangements on holidays, the granting of poison-licences, and an experience with hashish (p. 49).

News of the Week.

A report regarding the dispensing of medicines in Birmingham is given on p. 39.

The reasons why Great Britain is not taking part officially in the Panama Exhibition are given on p. 38.

The revised regulations made under the Australian Commerce Act are given on p. 39, so far as they refer to the declaration of drugs and the labelling of infants' food (p. 39).

The National Insurance Act (1911) Amendment Bill is to receive the Royal assent on Friday. We explain the scope of the sections that deal with matters pharmaceutical (p. 51).

We deal briefly with the more important addresses delivered before the International Congress of Medicine on p. 44, and elsewhere give an account of the reception of the delegates by the Lord Mayor of London (p. 35).

A correspondence between the Pharmaceutical Standing Committee for Wales and the Insurance Commissioners for Wales is summarised on p. 42, and this is followed by reports from various parts of the country regarding the administration of Medical Benefit.

Trade and Market Matters.

The remarkable returns for July of the Board of Trade showing the exports and imports of this country are analysed on p. 52.

Among the articles which have advanced in price are benzols, glucose, shellac, and starches. Quinine, cream of tartar, carbolic acid, copper sulphate, and ammonium sulphate are firmer. Opium and cloves tend easier, while lemon oil, arsenic, strychnine, and new lobelia are cheaper (p. 75).

Repetition of Prescriptions.

LORD LAMINGTON'S BILL to prevent the indiscriminate repetition of prescriptions containing scheduled poisons will, if adopted, introduce restrictions to some extent approximating those already in existence in some countries. A brief review of these restrictions may prove interesting.

In the Hungarian Pharmacopœia a number of drugs—*e.g.*, acetanilide, aloes, amyl nitrite, antipyrin, caffeine, potassium and sodium bromide and iodide, tincture of opium, to mention but a few—are specially designated by the inclusion of one cross in the title, while poisons are marked with two crosses. In Hungary it is forbidden to make up a prescription from a copy if the medicine contains a drug marked with one or two crosses. No original prescription containing a poison marked with two crosses may be refilled without the renewed signature of the prescriber; prescriptions containing a drug marked with one cross may be repeated, if the doctor has not written any directions to the contrary.

In Italy the pharmacist is compelled to retain all prescriptions containing a poison, and in this way, as poisons may only be dispensed upon an original prescription, it is impossible to have a prescription of this kind refilled, as even the pharmacist who first made it up is forbidden to repeat it. The Italian Pharmacopœia contains a list of forty-seven poisons; this includes, *inter alia*, adrenalin, sodium cacodylate, codeine, extract of *nux vomica*, Fowler's solution, and tartar emetic.

Germany possesses most elaborate regulations dealing with the repetition of prescriptions. In the first place, no prescription calling for chloral hydrate, chloral formamide, morphine, heroin, cocaine, or their salts, preparations of ethylene, amylen hydrate, paraldehyde, sulphonal, trional, urethane, or veronal may be repeated unless it bears on each occasion the date and signature of a doctor. In the case of prescriptions containing morphine, or heroin, an exception is made. Thus, if either of these drugs is present in a medicine in addition to other drugs, and is therefore merely an auxiliary and not the principal therapeutic agent, the medicine may be repeated provided the total amount of morphine present does not exceed half a grain (0.03 gram), and of heroin one-quarter of a grain (0.015 gram). A long list of potent drugs has been drawn up, and against each the maximum repetition dose is given; that is to say, a medicine containing any of the drugs enumerated in this list may be repeated without formality, provided the single dose of such drug does not exceed the amount stated in the table. If the dose is not apparent from the directions, then the medicine may not be repeated, and as in the case if the dose is in excess of the amount allowed, then on each occasion the date and signature of a doctor must be obtained before the pharmacist may again make up the prescription. Of course, if the prescriber makes a note on the prescription forbidding its repetition, this is binding on every apotheker. The following are a few of the potent drugs included in this list, with the maximum repetition dose (amounts in grams):

Acetanilide	...	0.5	Liq. arsenical.	...	0.5
Antipyrine	...	1.0	Sodii salicyl.	...	2.0
Apomorphine	...	0.02	Opium	...	0.15
Atropine	...	0.001	Phenacetin	...	1.0
Codeine	...	0.1	Pulv. ipecac. co.	...	1.5
Extr. bellad.	...	0.05	Tinct. aconiti	...	0.5
Extr. colocynth.	...	0.05	Tinct. colchici	...	2.0
Extr. hydrast. liq.	...	1.5	Tinct. lobel.	...	1.0
Extr. hyoscyam.	...	0.2	Tinct. opii	...	1.5
Extr. opii	...	0.15	Tinct. strophant.	...	0.5
Extr. nuc. vom.	...	0.05	Tinct. nuc. vom.	...	1.0
Digital. fol.	...	0.2	Vin. antimon.	...	2.0

Thus a prescription calling for ten acetanilide powders of 0.5 gram each may be repeated *ad libitum* without any formality, but it is forbidden to repeat, without the date and signature of a doctor on each occasion, a prescription reading "Acetanilid. 0.6 gram," as in this case the permissible repetition dose has been overstepped. On the other hand, a prescription—"Tinct. opii 10 grams: Sig.: 15 gtt. t.i.d."—may also be repeated

without formality, as the dose is within the repetition limit; but were the prescription to read "Tinct. opii 15 grams. Sig.: To be taken as directed," the pharmacist may not repeat it without requiring the signature of a doctor, as in this case the single dose is not apparent from the prescription. These restrictions on the repetition of prescriptions calling for certain specified drugs apply not only to medicines for internal use, but also to those employed as eye-lotions, inhalations, hypodermic injections, enemata, and suppositories.

The Business Side.

A series of short articles by "Observer" on what chemists do and don't do (especially the latter) to attract and keep business.

III. Display.

WE are a generation, if not a century, behind our friends the draper and the grocer in making displays of the goods we are here to sell. I fear our first inducement to display any article is that it offers a good profit. We do not consider first that it may possibly have a good sale. It may pay to sacrifice *prima!* profit to larger sales at less profit. A display is not always to benefit us directly, but to benefit our business.

A draper utilises not only his windows but his shop to make displays. At one corner you will see dainty hose of all colours ticketed in plain figures; at another lace of many designs. Articles of feminine attire are shown in association with each other, to give an idea of the match and result of a particular blend of material, colour, or design. All are appropriate to the season and even to the day, and reflect the taste and purchasing abilities of the buyer. We have an occasional window-show, but these are often not our ideas at all, but those of a manufacturer, and even in these cases we often fail to use to best advantage the material sent us.

The interior of our shops is scarcely ever utilised as it might be. In describing one shop you may describe a hundred. The counter—a short open space for serving, a series of shelves on which are bottles of citrate of magnesia, lime-cream, tooth-washes, health-salts, perfumes, etc., in sorry confusion; a stack of boxes containing twopenny soaps, the top box open, exposing some dusty tablets; a series of cases fitted with proprietaries, the tablet showcase, and so on. Send an ordinary person into a draper's shop and he will come out with a distinct idea of several different things he has seen; but ask him what he has specially noted after visiting a chemist's shop, and he will have difficulty in telling you. In some cases I know of it would be a tape-worm in a bottle, or perhaps he may say he saw a fly-blown showcard bearing the legend, "Spring Medicines, Sulphur Tablets, etc.," although it is now summer.

Instead of solitary bottles arranged as a nondescript mass, we should have stacks of one article labelled and described in telling phrases. We should not use our shop space for stock so much as for display, and everything we display should be tasteful, clean, and convincing. We need scarcely devote valuable space to such lines as cascara extract and ammoniated quinine; these are things the public know we stock, and showing does not sell them.

In courtesy no one can surpass the chemist, but it is not the courtesy the public want. They do not want cold, formal politeness, as of a person granting a favour, but business courtesy, the expression of thanks for favours of business granted and willingness to do more, prompt delivery of goods, anxiety for custom, readiness in serving; in short, less sealing-wax and more business.

We are a people of small things, and our training has led us astray. We have passed through the school of adversity, but we have not profited by our experience. The day of the chemist, who was supposed to practise in almost mystic art, has gone, and although we use mysterious symbols in prescription books, with Latin names for the days of the week to head our day-books, let us be careful that we realise that all they once signified is gone and given place to the hurry and bustle of to-day.

ENGLISH AND WELSH NEWS.

When sending newspapers to the Editor please mark the item of news to which you desire to call his attention.

Brevities.

The Darwen Corporation has granted a closing order for the optical dealers of the district.

Dr. R. B. Wild, Professor of Materia Medica and Therapeutics at Manchester University, has been elected an examiner in pharmacy by the Council of the Royal College of Physicians.

On completing forty-five years in business, Mr. B. Hepworth, J.P., managing director of B. Hepworth & Co., Ltd., chemical-manufacturers, Kidderminster, has been presented by his employes with a silver flower-stand, with four silver vases attached, and a framed illuminated address.

The Board of Trade has published a report on the increase of the cost of living in this country and abroad, and in rents paid by the working classes. Since the last inquiry in 1905 there has been a rise in the cost of living, but inquiries show that the movement is world-wide. Rents have slightly decreased.

In connection with the Manchester Chemists' Assistants' Association nineteen friends from Manchester and Oldham joined in a delightful ramble over the country round Broadbottom on August 10. So much was the excursion enjoyed that another ramble has been arranged for Sunday, August 31, over Kinderscourt.

During the investigation into the affairs of Richard Buckworth in the London Bankruptcy Court it was stated that debtor started practice as a beauty specialist under the name of "Pearl" at Conduit Street. He spent 2,400*l.* in fitting up the premises, and continued in the business for ten months. He lost 5,000*l.* in the venture.

Mr. William Hughes, formerly assistant with Messrs. Buxton & Co., chemists, Queen's Road, Bristol, met his death during a visit to Weston-super-Mare. Mr. Hughes, owing to the rock giving way, fell from a height of about seventy feet while climbing the Bream Down cliffs. He fell into the sea, and a companion got him out, but he died in the motor-car taking him back to Weston.

International Congress of Medicine.

The City of London welcomed the members of the Seventeenth International Congress of Medicine at a conversazione in the Guildhall on August 8. It was a most brilliant function both from a spectacular and intellectual point of view. The Lord Mayor, accompanied by the Sheriffs, received the guests in the Guildhall from 8.30 to 9 p.m. Dancing took place in the library from nine o'clock, while in the Council Chamber a variety entertainment was given. Programmes of music were also performed during the evening in the Art Gallery and in the Guildhall. The floral decorations were magnificent, huge banks of roses being a feature of the scheme. The museum with its unrivalled collection of City relics was open to the guests, and refreshments were served in the ancient crypt, the Council Chamber crypt, and the library reading-room. To many the most interesting feature was the display of civic treasures which are not often to be seen by the public. In the Guildhall was a selection of gold plate from the Mansion House, and in the Art Gallery were exhibited the ancient charters from that of William I. to the charter of King John, dated 1214, which gave the citizens the right to elect their Mayor. The celebrated jewelled sceptre which is handed down from each Lord Mayor to his successor is perhaps the choicest of the City treasures. The shaft of crystal dates from early Saxon times. The City Purse, of unknown history, in which in the days before banking became general the City cash was handed over to each Lord Mayor, was also shown. The collection of manuscripts included the *Liber de Antiquis Legibus* (cir. 1274), the *Liber Horn* (a compilation of charters, statutes, and customs made by Chamberlain Horn in 1311), the *Liber Custumarum* (1324), the *Liber Albus* (1419), the *Liber De Assisa Panis* (fourteenth century), No. 1 of the *Husting Roll* (1252-4),

a fifteenth-century missal formerly belonging to St. Botolph, Aldersgate, and one of the six signatures which are known of Shakespeare; it is attached to a deed of purchase of a house in Blackfriars, dated March 10, 1612-13. There were present at the conversazione hundreds of medical men well known in this and other countries. Of those present directly associated with pharmacy were Mr. and Mrs. J. C. Umney, who revisited the scene of the equally successful reception organised by the British Pharmaceutical Conference a fortnight previously.

Co-operative Stores and Income-tax.

Correspondence between the Treasury and the Drapers' Chamber of Trade has been published regarding the payment of income-tax on the profits of co-operative societies. Mr. Masterman (Secretary of the Treasury) points out that under Section 24 of the Industrial and Provident Societies Act, 1893, it is provided that while registered societies are not directly assessed to income-tax on Schedule C and D, in certain circumstances, "no member of a society shall be exempt from any assessment to the said duties to which he would be otherwise liable." In other words, so far as his income is taxable, a member of a co-operative society is liable to income-tax to exactly the same extent as a person holding shares in a trading concern. As a matter of administration the tax is levied on personal declaration, as it would be in the case of a small individual trader, the reason being that, as stated by the Income-tax Commission of 1906, which examined the whole matter very carefully, any other method would merely result in a net loss to the Exchequer, in view of the cost of collecting the tax at the source on a very large number of incomes under 160*l.*, almost all of which would have subsequently to be repaid. As stated, the difference in the method of collection confers no exemption whatever on co-operators. To put the matter shortly, if a member of a registered society has an income exceeding 160*l.* he is liable to tax, and receives no exemption; if his income is below 160*l.* he is exempt in exactly the same way as any other person whose income is below 160*l.* The suggestion, therefore, that co-operators escape liability to income-tax, to which individual traders are liable, seems to be based on a misconception of the facts.

Bristol Notes.

Many chemists are now making big shows of toilet-soap of local manufacture.

Messrs. H. H. Budgett & Co., Ltd., had a very disastrous fire on August 9, damage being done to the amount of many thousands. The company are wholesale grocers, and for heavy goods are much favoured by some chemists.

Assistants are scarce in the district, and a serious difficulty exists in the shortage of errand-boys. The attractions of the tobacco factories seem to be a cause. In at least one case medicines are being delivered by grown men at men's wages.

The holiday season is now in full swing, and chemists at the Clifton end are more or less resting. The College is closed, and parents and guardians of the boys have taken their various ways to Scotland and the Continent. Chemists themselves are in many cases taking a well-earned rest. While Bristol is quiet, the case is different with chemists at Weston and Clevedon. The glorious weather has brought plenty of visitors and made business brisk.

Midland Notes.

At the Highbury, King's Heath, Flower Show among the numerous prizes offered to competitors was one by Mr. Foden, the chemist.

An excellent example of the mirage was to be seen in Bristol Road and Eastern Road last Friday consequent upon the hot weather of the week.

During the vacation some of the students of science of the Birmingham University are offering their services to firms and works, quoting the subjects in which they have specialised.

The Chemists' Cricket Club, which plays at Castle Bromwich, on Wednesday met the Grey's Sports Club, but only mustered 56 runs, against their opponents 60 with three men still to bat.

Cricket.

The Wholesale Chemists' and Druggists' Cricket League match played at Crofton Park on August 9, between Burgoyne's C.C. and the British Drug Houses C.C., resulted as follows: Burgoyne's, 75 runs; B.D.H., 39 runs. For B.D.H., C. Parker made 43 runs, and took 3 wickets for 11 runs. For the losers, Heaven hit up 23, and Metcalf 26 not out.

Contracts.

Middleton Town Council.—Messrs. J. Barrett & Co., for disinfecting powder and fluid.

Alford (Lines) Urban Council.—Mr. W. Allis, pharmacist, appointed chemist for the ensuing six months.

Horwich District Council.—Messrs. J. Smith, jun., & Co., for the supply of sulphuric acid required to March 31, 1914, at 50s. per ton.

Manchester Corporation.—Surgical bandages, Messrs. Joseph Brookes & Co., Ltd., and Messrs. J. E. Williams & Co.; sulphuric acid, Messrs. H. N. Morris & Co., Ltd.; alkali, Messrs. Brunner, Mond & Co., Ltd.; carbolic acid, Messrs. Hardman & Holden, Ltd.

Wine-licences.

At the Bournemouth Police Court on August 7, the transfer was granted of the wine-licence held by Mr. J. H. Williams, chemist, as managing director of Williams, Borough Pharmacy, Ltd., 35 Commercial Road, Bournemouth, the company having recently sold their business to Mr. Frederick Griesley.—At the same court application was granted for a transfer of a wine-licence to Mr. Arthur Francis Attwell, who had taken over the business of Mr. Simpson, chemist, Bank Buildings, Christchurch Road, Boscombe.

From Various Courts.

At Portsmouth on August 8, James Lewis Fletcher, described as a chemist's assistant, was committed for trial on a charge of obtaining credit by fraud or false pretences. Defendant ordered goods from traders in various parts of the country, but did not pay for them.

The defence that a man was quinine-drunk, if drunk at all, was put forward at Accrington Police Court last week. Dr. W. R. H. Coates, Haslingden, summoned for being drunk in charge of a motor-car, said he suffered from the effects of malarial fever, and he took 15 grains of quinine on the day when the offence was alleged to have been committed. A fine of 40s., and costs, was imposed.

In the course of an inquest at Kensington on the body of Mrs. Fowle (75), Mr. A. G. Worsley, Ph.C., 135 Ladbroke Grove, W., gave evidence that he had supplied ammoniac tablets to deceased on the prescription of Dr. Cameron. He also witnessed Mrs. Fowle's signature to a document. Dr. Cameron said he gave the tablets for sleeplessness. Other evidence showed that deceased took large quantities of Eau des Carmes. A verdict was returned of "death from natural causes."

At the Southport County Court on August 12, judgment was given for 2*l.*, the amount paid into court, in favour of Edward Denton, described as a "medical herbalist specialist." Plaintiff claimed 5*l.* 0*s.* 6*d.*, damage done by breakage of medicines in transit. Judge Shand's examination of plaintiff was amusing. On plaintiff exhibiting a quart bottle in court as the size sent to a doctor's daughter, his Honour asked: "Is this lady alive or dead?" The solicitor for the defendant company, the Lancashire and Yorkshire Railway, pointed out that 2*l.* (working out at 4*s.* per bottle) had been paid into court. He thought this a generous sum. Plaintiff said the medicine cost him 6*s.* per bottle, and the Judge remarked that there is nothing to prove the value of the medicine.

At the inquest held by the Wolverhampton Deputy Coroner (Mr. E. Stirk) on August 11, on Sarah Ann Bromley, aged three, who died in the General Hospital, Dr. Richardson, house surgeon at the hospital, said he was told that the child had got hold of a bottle of strychnine solution lying on a tray in the ward. The child died in a fit shortly afterwards, but the symptoms were stated not to be those characteristic of strychnine poisoning but of epilepsy. The wardmaid, who found the child

with the strychnine bottle in her hand, had contracted throat trouble on the morning of the inquiry, and could not attend. In answer to the Coroner's inquiry if it was customary to keep poisons in the wards, Dr. Cholmeley said he thought hypodermic injections were kept on a tray. The inquiry was adjourned for purposes of analysis.

Sale of Food and Drugs Acts.

In Staffordshire last quarter samples of ground ginger, arrowroot, and tartaric acid were analysed, and certified as genuine.

Mr. G. E. Scott-Smith, the public analyst for the Borough of Rotherham, reports having analysed during the past quarter one sample of camphorated oil, which proved to be genuine.

Mr. F. W. Arnaud, F.I.C., public analyst for Portsmouth, has been appointed public analyst and agricultural chemist to the Administrative County of Kent. He will take up his duties at Christmas.

The report of Mr. Herbert J. Evans, public analyst to the Radnorshire County Council, for the past quarter, states that samples of self-raising flour and "Oxo" have been submitted for analysis and found to be genuine.

Mr. Arthur Angell, public analyst for the County of Southampton, reports having examined during the past quarter four samples of arrowroot, two of milk of sulphur, and one each of citric acid, tincture of rhubarb, and cream of tartar. All were genuine.

The Islington medical officer (Dr. A. E. Harris), in his annual report, states that sixty samples of various drugs were examined during 1912. These were ten each of sal volatile and Bland's pills, and five each of ammoniated tincture of quinine, tincture of quinine, lime-water, cod-liver oil, almond oil, tartaric acid, boracic ointment, and cream of tartar. Two samples of sal volatile and one each of tincture of quinine and almond oil were certified as adulterated.

The Cheshire County Council has appointed Mr. S. E. Melling, partner with the late Mr. Carter Bell (for many years county analyst and official analyst for Wigan), as county analyst, temporarily at the same rate of remuneration as was paid to the late Mr. Bell, who was appointed in 1876, had a retaining fee of 200*l.* per annum and 6*s.* for each sample analysed under the Sale of Food and Drugs Act. Including other emoluments, the sum paid to Mr. Bell for the last financial year of the Council was 584*l.*

The drugs examined during the past quarter by the Sheffield city analyst (Mr. G. E. Scott-Smith) consisted of four samples each of compound liquorice-powder, camphorated oil, and sweet spirit of nitre, and one of nitre sweating-mixture. These were genuine, excepting a sample of sweet spirit of nitre 43 per cent. deficient in ethyl nitrite. The report states: "The sample sold as 'nitre sweating-mixture' was composed of sugar, potassium nitrite, and paraldehyde. Such a preparation is sold as a substitute for the sweet spirit of nitre of the British Pharmacopoeia. There is no official definition for such an article, which is sold solely to avoid the control which the Acts have with regard to the sale of sweet spirit of nitre, an official preparation."

The Bournemouth analyst (Mr. R. A. Cripps) during 1912 examined thirteen drug samples (almond oil and Gregory's powder). These were genuine except one "test" sample and the subsequent official sample of Gregory's powder. The vendor was warned. Nineteen samples of aerated water were also analysed. Of eleven samples of potash-water adulteration was certified in respect of four owing to the presence of traces of lead rather above the maximum allowable. One of these was also very weak in potassium bicarbonate—viz., 4 grains per pint. Two of the seven samples of lithia-water were very deficient in lithium carbonate (74 per cent. and 80 per cent.), and two others were deficient to the extent of 12½ and 30 per cent. The last two were recorded as poor. The vendors of the adulterated samples were warned, the analyst remarking that the result of prosecution for deficient alkali is too uncertain, while the amount of lead was not sufficient to justify prosecution for a single sample.

IRISH NEWS.

When sending newspapers to the Editor please mark the items of news to which you desire to call his attention.

Pharmaceutical Society of Ireland.

The monthly meeting of the Council of the Pharmaceutical Society of Ireland was summoned for August 6. A quorum, however, did not attend, owing to the absence of members on holidays, and no business was transacted.

Brevities.

Mr. J. M. Torrens, Ph.C., Youghal, is opening a branch pharmacy in Tallow, co. Waterford.

Willie Tyrrie Turner, son of Mr. J. Tyrrie Turner, Ph.C., Carrick-on-Suir, won the fifty-yards swimming-race at Skerries (co. Dublin) Regatta on August 11.

Irish Week in Belfast last week produced several fine window-displays in the city pharmacies. Among the exhibitors at the Irish Exhibition in the Ulster Hall were Messrs. Grattan & Co., pharmaceutical chemists and aerated-water manufacturers.

Samuel Maguire, a lad of seventeen, was charged last week with having stolen 6*l.* 6*s.* 6*d.*, belonging to Mr. James Guthrie, druggist, York Street, Belfast, by means of false representation. Accused, against whom there were other charges of defrauding chemists, was remanded for a week.

Dr. J. C. McWalter, Ph.C., Dublin, who was last week elected Governor of the Apothecaries' Hall of Ireland, has resigned the position, as a protest against Dr. Adye-Curran, who has accepted a position under the Insurance Commissioners, being elected representative on the General Medical Council.

On the initiative of Mr. A. W. Mann, Ph.C., a special meeting of the Lurgan Urban Council was held last week for the purpose of promoting a scheme for the establishment of an electric-light supply for the town. Mr. Mann delivered a vigorous speech in support of the scheme, which was favourably received by the Council, a committee being appointed to go into the question.

Sir W. Baxter, D.L., in his capacities as Harbour Commissioner for Coleraine, Governor of the Academical Institute, and member of the committee of the Irish Society's Schools, was a member of a deputation which waited on Sir Alfred Newton and the Governors of the Irish Society in Coleraine last week. Mr. R. F. McCartney, Ph.C., was also one of the deputation.

SCOTTISH NEWS.

When sending newspapers to the Editor please mark the items of news to which you desire to call his attention.

Brevities.

It is reported from some of the Border districts that a poor yield of honey is expected this season, disease among bees being the cause blamed.

The fire on the Bass Rock recalls the fact that John Spreull, apothecary and merchant, Glasgow, was imprisoned there in 1681 by the Privy Council for his resistance to the Stuart tyranny. Six years later, when the other prisoners had applied for and been granted release, John Spreull still declined to make formal application, and the prison doors had to be thrown open to him.

Glasgow and the West.

Among the requests at the counter of a local chemist last week were two for a feeding-bottle tube. The first was a girl, who asked for a "trunk for a sookin'-bottle"; and the second, a woman, wanted an indiarubber pipe for a baby's bottle.

Four children in the East End on Monday afternoon found a bottle containing a dark-coloured liquid, and thinking it a mixture of "black sugar" and water they each took a drink. They were treated later at the Royal Infirmary for belladonna-poisoning.

FRENCH NEWS.

(From the "C. & D." Paris Correspondent.)

MADAME CURIE will spend part of her summer vacation at Warsaw, where she has agreed to superintend the installation of a radium laboratory. It would, however, be incorrect to suppose that the eminent Polish lady of science has any idea of abandoning her post as Professor at the Paris Faculty of Sciences or of quitting her laboratory in the Quartier Latin.

THE SALE OF POISONS.—The discussion of M. Lucet's report on the regulation of the sale of poisons has been adjourned by the Academy of Medicine to "a later date." The question has been divided, for convenience, into two parts: (1) The sale of morphine, cocaine, and all "stupefying" drugs; (2) the regulation of the sale of arsenical substances employed in agriculture.

THE USE OF SERUMS.—To give effect to resolutions passed by the Academy of Medicine and the Superior Council of Hygiene, the Minister of the Interior has drafted amendments to the law of 1895 respecting serums. The object of these amendments is to permit doctors to experiment on the human subject as to innocuity and efficacy of serums, on the condition that the medical man receives no fee at the time of treatment and remains responsible for ultimate results. Official permission must, however, be obtained before the serum can pass into general practice and use.

THE PREPARATION OF COCOA.—M. Perrot, Professor of Materia Medica at the Paris Superior School of Pharmacy, has made a speciality of the study of the products of the French tropical and semi-tropical colonies. Recently he communicated to the Academy of Sciences some notes on the preparation of cocoa (founded on experiments made on the fresh fruit) which may be summed up as follows: (1) The present mode of preparation might be modified by first extracting the pulp by mechanical means with a weak alkaline solution, and afterwards leaving the seeds in a hot damp place until sufficiently changed; (2) it would be preferable to adopt steam sterilisation (under pressure), followed by drying, this to be done at the plantations. Each planter could thus produce a uniform article.

THE SIGNBOARDS OF PARIS.—One of the least known and rarest of Balzac's works is his little pamphlet on the "Enseignes de Paris"—the old signboards which were still in his day a feature of the streets of the French capital. He incidentally mentions that "Jean Marie Farina, who makes the best eau de Cologne in Paris at 333 Rue St. Honoré," can do without a sign, as he is under the immediate protection of all the primates (*primats*) of Europe, and the Courts have declared him "the only possessor of the recipe of the famous Paul Feminis, philosopher and distiller." Farina, however, had a keen competitor in the same street. The eau de Cologne of Geslin, "by appointment to Le Roi, S.A.R. Monsieur, S.A.S. Madame la Duchesse d'Orléans," had as agent the famous pharmacy of Cadet Gassicourt, 188 Rue St. Honoré, who advertised his perfume as "the veritable eau de Cologne, approved by the Faculté de Médecine de Paris."

WHAT IS A CORN.—Considerable doubt seems still to exist as to whether corn-cures (coricides) are medicaments. Thirty years ago they were generally admitted as such. Then came a period during which they were held to be non-medical, followed by the resumption of the primitive thesis. In 1901 the weathercock blew round once more, and the Etampes Court declared corn-cures non-medicinal. A year ago (June 18, 1912) the Toul Tribunal, after reports drawn up by experts in the matter, held that they were "véritables médicaments," and that some, if carelessly used, might cause grave accidents. On being carried up to the Nancy Court of Appeal, this decision was reversed. The Nancy Judges held that a corn is a "conglomeration of epidermal tissue," that the remedy acted on the callosity alone, and "did not enter into the human body in the legal sense." The judgment added that the profession of pedicure has always been open to all.

SOUTH AFRICAN NEWS.

(From "C. & D." Correspondents.)

"The Chemist and Druggist" is regularly supplied by order to all the members of the seven Societies and Associations of Chemists in British South Africa, as well as to other chemists in business there.

Orange Free State.

BUSINESS CHANGE.—Mr. J. P. Green, late of Messrs. Lemon, Ltd., Port Elizabeth, has taken over the Bethlehem Pharmacy at Bethlehem, Orange Free State.

Transvaal.

OPIUM IMPORTATION.—The following proclamation appears in the "Government Gazette" of July 19:

"From and after the date of this proclamation no person (other than a person registered under the Union laws as a medical practitioner, dentist, or chemist and druggist, and in actual practice) shall import into the Union any opium or extract of opium, and no such excepted person shall import any such substance unless thereto authorised by a permit stating the quantity which may be imported, and signed by the Secretary for the Interior or an officer duly authorised by him; and such permit shall be in the form and shall contain such conditions as may be prescribed by regulations and shall be produced to the proper officer of Customs either before or at the time of the importation."

"In the Transvaal Province the permit shall not be granted to any person other than a person registered under the Medical, Dental and Pharmacy Ordinance, 1904, as a chemist and druggist."

MEDICINES FOR CIVIL SERVANTS.—The annual meeting of the Pretoria Chemists' Association was held on July 15, when it was agreed to supply all members of the Post Office and Railway Employees Associations with medicines at the following rates:

		Regular Prices	
		s. d.	s. d.
Mixtures	8 oz. ...	2 0	3 6
Gargles	6 oz. ...	1 9	3 0
Lotions	4 oz. ...	1 6	2 6
	2 oz. ...	1 3	2 0
Liniments: 6 oz., 3s.; 4 oz., 2s. 6d.; 2 oz., 1s. 6d.			
		Regular Prices	
		3s. per doz.	2s. "
Powders, 2s. per doz.	...	3s. per doz.	
Pills, 1s. per doz.	...	2s. "	
Ointments, 1 oz., 1s. 6d.	...	2s.	
" 2 oz., 2s. 6d.	...	3s. 6d.	
Suppositories, ½ doz., 2s. 6d.	...	2s. 6d.	
" 1 " 3s. 6d.	...	4s. 6d.	

A discount of 10 per cent. is to be given off all other goods with the exception of infants' foods and P.A.T.A. articles. Patents and proprietary articles when included in a prescription are to be charged extra, according to cost of same.

Medical and Pharmacy Council, O.F.S.

The last monthly meeting of the Council as then constituted took place on July 11 at Bloemfontein. There were present: The President (Dr. A. B. Ward). Drs. C. H. Bidwell, S. M. de Kock, J. V. Manning, and G. H. Usnar, Messrs. E. Whiteside (dental member) and S. S. Hewitt (pharmaceutical member). The following registration was confirmed: John Percy Green (chemist and druggist, Great Britain, 1900) a chemist and druggist; address, Bethlehem.—A chemists' and druggists' examination will be held in August. The only candidate is a Mr. Leigh. The following examiners were appointed: *Prescriptions*, Drs. A. B. Ward and S. M. de Kock; *Pharmacy, etc.*, Messrs. A. Fowlic and S. S. Hewitt; *Botany*, Professor G. Potts; and *Chemistry*, Messrs. Lytle and Weall. Dr. Manning expressed, on behalf of Dr. Bidwell and himself (the members who had not stood for reelection), their appreciation of the President's unfailing courtesy in the chair, and wished the new Council a prosperous and not too stormy a career. The President, in reply, thanked the members of the Council for their constant loyalty to his decisions during his term of office.

CHINESE CAMPHOR.—The exports from Foochow during 1912 amounted to 213 cwt. (1,934t.), against 665 cwt. (5,502t.) in 1911.

COLONIAL AND FOREIGN NEWS.

THE DROGUEIRA CENTRAL DEL URUGUAY has been formed with a capital of 50,000t., the shareholders being chiefly doctors and chemists. It is proposed to erect a laboratory in a suburb of Montevideo.

THE BRAZILIAN TARIFF.—The Board of Trade are in receipt of a telegram from H.M. Minister at Rio de Janeiro, stating that a draft of a revised Customs tariff for Brazil has been prepared, and will shortly be placed before an official committee for examination. Representations from interested parties in Rio de Janeiro with regard to the tariff are to be made within thirty days, and Sir W. Haggard suggests that it would be advisable for the agents of British exporters in that capital to lodge any protests they may desire to make before August 31.

PANAMA EXHIBITION.—The British Government has notified the Commissioners for the Panama Exhibition that it is not the intention of the Government to organise a British section at the Exhibition. The action of the Government having been misrepresented as arising from pique over the Panama Canal dues dispute, the method by which the decision was arrived at has been explained. In connection with the Board of Trade a permanent Exhibitions Branch has been in operation for some years, and successful British sections have been organised at Brussels, Milan, and Ghent. Previous to the decision not to take part officially in the Panama Exhibition the Exhibitions Branch circularised manufacturers with a view to obtaining the names of those willing to exhibit in the British section. The response was so poor that the Department, in view also of the fact that the probable expense would be over a quarter of a million sterling, did not feel justified in making application to Parliament for a grant. Efforts are being made, it is stated, to have the question reopened.

INDIA AND THE EAST.

(From the "C. & D." Correspondents.)

COCAINE SMUGGLING.—The Customs officers at Calcutta recently managed to secure 30 lb. of cocaine which was thrown overboard from the Austrian-Lloyd steamer *Silesia* when on the River Hooghly. The man who threw the bag overboard was captured.

PATENT MEDICINES IN CHINA.—According to the report for 1912 of the Assistant-Consul at Mengtsz, patent medicines have found a ready market in Yunnan, and the import has risen from 39,925 Haikuan taels in 1910 (a Haikuan tael being worth about 2s. 8d.), 46,350 Haikuan taels in 1911, to 65,356 Haikuan taels in 1912. Various Japanese and other patent remedies, widely advertised on posters and in the local Press, find great favour with the Chinese.

TREATMENT OF SNAKE-BITE.—Last year a resolution of the India Central Provinces Administration passed a resolution which expressed a doubt as to the practical value of Sir Lauder Brunton's treatment of snake-bites with potassium permanganate. This year, after evidence of the usefulness of the method in a case at Drug, the Chief Commissioner desires to modify the resolution of last year, "and will be glad to see a more extended use made of the Lauder Brunton method, provided it is carefully applied."

DANGEROUS MEDICINE.—In the annual report of Major Windsor, chemical examiner to the Bengal Government, attention is drawn to a case of sulphuric-acid poisoning in Calcutta. An adult Bengali suffering from dyspepsia took a small quantity of a patent medicine sold under the name of "extract of jambulin." He became so ill immediately afterwards that he had to be removed to hospital, where he recovered. The "extract" was found to consist of strong commercial sulphuric acid. This was not the first time that this patent medicine had been analysed with a similar result. "The Pioneer," in reporting the above case, adds that the popularity of patent medicines among the town population of India is amazing, and large fortunes are made by the vendors.

Dispensing Tested.

In his quarterly report Mr. J. F. Liverseege, F.I.C., Ph.C., public analyst for Birmingham, says a medical prescription ordering

Potass. iodidi. 3iv.
Aq. menth. pip. 3viij.

was dispensed at eighteen shops. One sample was practically correctly dispensed, but was labelled "The Mixture as recipe," which is an undesirable way of labelling a mixture containing a strong drug like potassium iodide. In three cases serious errors were made. One sample contained 155 gr. per 8-oz. bottle of potassium iodide instead of 240 gr. which was ordered. This prescription was made up at an oil, drug, and colour stores, and there was no label on the bottle. When the prescription was dispensed the owner of the business was seriously ill, and subsequently died. The manager who made up the prescription was cautioned. Another sample contained 218 gr. of iodide of potassium per 8-oz. bottle. The bottle actually used for the medicine contained rather less than 8 oz., and so the deficiency was not due to the dispenser using too large a bottle and filling it up with water. The vendor was cautioned. A third sample contained 205 gr. of potassium iodide per 8-oz. bottle, and the vendor was prosecuted. A quinine mixture prescription ordered

Quin. sulph. 3iv.
Ac. sulph. dil. 3iv.
Aq. ad 3vj.

As the prescription ordered the maximum dose of quinine sulphate some chemists declined to dispense it without further authority from the medical men. Several others gave verbal warning that the dose must not be exceeded, and one careful chemist attached a printed label to the bottle stating that "a graduated glass measure must be used to ensure the correct dose." Four of the ten samples were incorrectly dispensed. One contained 168 gr. of quinine sulphate instead of 240 gr., the quantity ordered by the prescription, and 210 minims of diluted sulphuric acid instead of 240 minims per 6-oz. bottle. A second was too strong, containing 291 gr. of quinine sulphate. The sulphuric acid present was insufficient to dissolve the quinine, part of which separated as a cake on the bottom of the bottle, and no amount of shaking would remove it. A third sample was too weak, containing 207 gr. of quinine sulphate and 190 minims of diluted sulphuric acid per 6-oz. bottle. The fourth sample was about half strength, containing 127 gr. of quinine sulphate and 210 minims of diluted sulphuric acid per 6-oz. bottle. The bottle was handed to the inspector by the chemist's wife, and the division into three parts was being made when the chemist came in and seized the bottle and so prevented the formalities of the Act being complied with. The single sample of salicylate mixture was dispensed under the National Insurance Act. The local Pharmacopœia requires this mixture to contain

Sod. salicyl. 3ij.
Sod. bicarb. 3iv.
Inf. cascarillæ ad 3viij.

The prescription ordered this mixture to be made double strength. The prescriber probably overlooked the fact that such a mixture does not contain enough water to dissolve the salts, and that a large sediment would be present. The bottle of medicine received was quite clear, and had a "Shake the Bottle" label on it. It contained 40 per cent. of the quantity of sodium salicylate ordered, and 21 per cent. of the quantity of sodium bicarbonate; and chloroform was present, which was not ordered by the prescription. Five samples of red precipitate ointment were genuine. One sample was sold in a box which had no label or mark on it. Mr. Liverseege informed the Pharmaceutical Society that the Act had been infringed, and they asked him to call the attention of the police authorities to the case. The Chief Constable informed him that in Birmingham the police do not deal with this Act, and as the Poisons Act is not one of those the Health Committee has authority to enforce, they cannot take proceedings in the matter.

Commerce Act Regulations.

NEW regulations have been issued under the Commerce (Trade Descriptions) Act, 1905, which come into force at once except the additional requirement regarding infants' food, which is operative from October 1. The list of drugs which have to be declared has been altered in several details since we published it in our issue of April 30, 1910 (index folio 671). The regulation (8) is as follows:

(f) In the case of medicines and medicinal preparations for internal or external use, if the goods contain any of the following drugs or poisonous chemical derivatives thereof—viz.:

Free iodine or chemical compounds containing iodine or bromine, excepting iodoform and its substitutes; or

Poisonous compounds of antimony, arsenic, barium, bismuth, copper, lead, and mercury; or

Yellow phosphorus, hydrocyanic acid, and poisonous cyanides; or

Chloral, dormiol, isopral, acetone-chloroform (chlore-tone), dionin, heroin, paraldehyde, sulphonal, trional, tetronal, veronal, propional, bromural, neuronal, or any other natural or synthetic hypnotic substance; or

Anilides, phenetidines, or pyrazolones, such as acetanilide, phenacetin, phenazone, or other derivatives of anilines, aminophenols, or quinolines, or other preparations possessing analgesic or antipyretic properties; or

Any drugs of vegetable origin being or containing poisonous alkaloids, poisonous glucosides, or other poisonous principles; or

Adrenaline, or its substitutes; chloroform, nitro-glycerin; or

Carbolic acid, cresols, guaiacol, creosol, naphthols, resorcin, hydroquinone, pyrogallie acid; or

Cantharides, cotton-root, ergot, oil of pennyroyal, oil of rue, oil of savin, oil of tansy, oil of parsley, or any emmenagogue or reputed abortifacient substance; or

Para-phenylenediamine, or similar irritant organic bases;

the trade description shall include an explicit statement to such effect, setting out, in regard to any substance specifically named in this list, such specified name of the substance, or in the case of any substance included but not specifically named in this list, the name most commonly applied to the substance in the English language in the Pharmacopœias of Great Britain and the United States of America, or in the British Pharmaceutical Codex, or other recognised authority, and also the quantity or proportion of the drug present in the goods.

(ga) In the case of liniments or veterinary medicines, if the goods contain methylated spirits the trade description shall include a statement setting out in clear and prominent characters, and in the following form, the percentage of such substance contained in the goods—viz., "This preparation contains * per cent. of alcohol by volume in the form of methylated spirit"†.

(fb) In the case of cultures and preparations of bacteria, yeasts, and similar micro-organisms, intended for medicinal, prophylactic, or therapeutic purposes, or for use as or in the preparation of articles of food or drink for man, the trade description shall include a statement as to the freedom of the culture or preparation from extraneous disease-producing micro-organisms, and also a statement as to the date up to which the culture or preparation will remain active.

The amended additional requirement for infants' food is as follows:

8 (b) In the case of foods for infants, if the food is not suitable for general use for infants under the age of six months, the trade description shall include, in legible characters and conspicuously displayed, the following words—namely, "Not suitable for infants under the age of six months."

* Quantity to be stated.

† Under the provisions of the "Spirits Act, 1906," it is an offence to sell or have in one's possession any medicines containing methylated spirits other than liniments and veterinary medicines.

SIR GEORGE BIRDWOOD, K.C.B., one of the leading authorities on Far Eastern affairs, says that "the whole of the Chinese anti-opium crusade is from first to last in itself a lie, and a proved delusion of the people of England, and a merciless cheat on the people of India."

LEGAL REPORTS.

High Court Cases.

Unless when otherwise stated these cases have been heard in the High Court of Justice, London.

"LAVONA" TRADE-MARK.

In the Bill Chamber of the Court of Session, Edinburgh, on August 11, Lord Dundas had before him a note of suspension and interdict at the instance of Tokalon, Ltd., wholesale and retail manufacturing chemists, 212 and 214 Great Portland Street, London, who sought to interdict Davidson & Co., chemists, 19 Barclay Place, Edinburgh, and carrying on business under the trade name of "The Kar Manufacturing Co.," from selling "Lavroma," a preparation for shampooing. The complainers state that they are the proprietors of the trade-marks "Lovona" and "Lavoña" (hair-washes), and complain that the respondents, who carry on business at 19 Barclay Place, 1 Earl Grey Street, and 7 Lothian Road, Edinburgh, have infringed, and are at present infringing, their exclusive right to use the trade-marks in question by using the word "Lavroma" in connection with the advertisement and sale of products manufactured by them. The word "Lavroma," they say, is an obvious, or at all events a colourable, imitation, both in spelling and pronunciation, of their trade-marks. The use of the word is calculated to do, and is in fact doing, serious damage to their business. The respondents, in their answers, explain that they have used the word "Lavroma" in connection with a preparation for shampooing since March 1912. The word had no connection with or resemblance to the complainers' registered words. No one has been or could be deceived by any fancied resemblance either in its spelling or sound, and the labels used by them in no way resembled those of the complainers. For the complainers, it was argued that this is a case where interim interdict should be granted. The respondents' counsel opposed the motion, and pointed out that the balance of convenience was in favour of allowing the present sales to go on. He undertook to keep an account of these sales if his Lordship thought it necessary. Lord Dundas refused to grant interim interdict, and passed the note for the trial of the action in the Court of Session.

LIMITED COMPANIES.

New Companies Registered.

The letters P.C. mean Private Company within the meaning of the Companies Act, 1907, and R.O., Registered Office.

WOOLWICH DRUG-STORES, LTD. (P.C.)—Capital 1,000*l.*, in 1*l.* shares. Objects: To take over the business carried on at 75 New Road, Woolwich, London, S.E., by E. W. Roberts as "Harwood's Drug-stores." The first directors are E. W. Roberts and S. Clarke (joint managing directors). E. W. Roberts may retain office for life. Secretary, N. J. McDermott, Broadmead House, Panton Street, S.W.

T. J. SYNDICATE, LTD. (P.C.)—Capital 100*l.*, in 1*l.* shares. Objects: To acquire a process for the manufacture and production of concentrated coffee in powder form, and to carry on the business of chemists, analysts, seed-crushers, manufacturers of linseed, cotton, and other cakes, oil-extractors, cake and oil manufacturers, oil-refiners, soap-boilers, manufacturers of and dealers in cattle-food, etc. R.O., 80 Bishopsgate, London, E.C.

NEVE & CO., LTD. (P.C.)—Capital 2,500*l.*, in 1,500 shares of 1*l.* each and 2,000 shares of 10*s.* each. Objects: To carry on the business of chemists, druggists, dispensers, soap, perfume, and chemical merchants, photographic dealers and operators, dealers in optical appliances, etc. The first directors are C. G. Skyrme, 6 Grange Road, Upper Norwood, London S.E.; T. H. J. A. Cooper; F. C. Parkinson, 1 Edward Road, St. Leonards-on-Sea; and F. Guttridge.

SQUIRE & SONS, LTD. (P.C.)—Capital 5,100*l.*, in 1*l.* shares (5,000 "A" and 100 "B"). Objects: To carry on the business of chemists, druggists, drysalers, manufacturers of chemical, industrial, and other preparations and photographic requisites, etc., and to adopt an agreement with P. W. Squire. The subscribers are: P. W. Squire, 413 Oxford Street, W., chemist; and C. M. Caines, 413 Oxford

Street, W., analytical chemist. P. W. Squire is permanent governing director. R.O., 413 Oxford Street, London, W.

STATHERS DRUG CO., LTD. (P.C.)—Capital 2,000*l.*, in 1*l.* shares. Objects: To take over the business of a drug-stores and kindred departments carried on by A. B. Stathers at 3 Union Street, Fife, and to carry on the business of chemists, druggists, drysalers, oil and colour men, etc., and to adopt an agreement between A. B. Stathers and S. R. S. Bird and S. A. S. Bird. A. B. Stathers is permanent governing director, with 100*l.* per annum and 50 per cent. of the net profits in excess of 5 per cent.

BUSINESS CHANGES.

Notes for this section sent to the Editor should be authenticated, and must not be in the nature of advertisements.

MR. H. GOWER has purchased the business of Mr. S. V. Roberts, Ph.C., 30 Fore Street, Totnes, Devon.

MR. A. L. PETERS, chemist and druggist, has recently purchased the business of the late Mr. Willis at 16 Branch Road, Armley, Leeds.

MR. R. W. BROOMFIELD, chemist and druggist, St. Bees, Cumberland, announces that he is giving up the business and leaving the district.

MR. W. ALFRED JONES (Original Antiseptic Pastille, Ltd.) has removed to West India House, Maryland Street, Rodney Street, Liverpool.

THE PREMISES situated at 14 Town Street, Stanningley, near Bradford, until recently carried on as a sweet-stores, have been taken over by the Smith's Drug Co.

MESSRS. H. J. GRATTE & SON, chemists and druggists, Newport and Barry Dock, have opened a branch pharmacy at 216 Stow Hill, Newport, Mon. It will be under the management of Mr. E. S. Slack, chemist and druggist.

MESSRS. MARSHALL & FRENCH, E.I. and Colonial brokers, intimate that in consequence of the Government having acquired the building in which their present offices are situated for the purpose of a telephone exchange, they have been compelled to surrender their lease, and have taken fresh premises at 4 and 5 Fen Court, opposite the northern end of Mincing Lane, E.C. Their telephone number, Avenue 204, will remain unchanged, but they have installed a second line, Avenue 6343.

POISONING FATALITIES.

TEN deaths consequent upon taking poison are notified this week.

Acetic Acid was used for suicidal purposes by Alvina Hind (32), Wyke, near Bradford.

Laudanum.—Anne Barbara Currie (57), saleswoman, poisoned herself at Brixton with this opiate.—Edward Pridmore, furniture-polisher, Pimlico, died from an overdose of the same drug, taken to relieve toothache.

Nitric Acid was responsible for the self-inflicted death of Robert Glass (30), export buyer, Manchester.

Oxalic Acid.—Martha Eliza Weaver (38), coal merchants' agent, died at Birmingham from the effects of oxalic acid self-administered.

Potassium Cyanide.—At the Hammersmith Coroner's Court on August 8, an inquiry with reference to the death of John William Biggam (32), chemist and druggist, who died in the Shepherd's Bush Police Station from poison. Deceased's father, Mr. James Biggam, draper, Whitehaven, said his son was out of business, and had been lodging at Epsom. Witness last saw him there on July 25, when he was waiting in expectation of getting a situation. He had no trouble to witness's knowledge, and need never be short of money. The police evidence was to the effect that deceased was arrested on Shepherd's Bush Green for sleeping out without visible means of subsistence. When within a yard of the station door deceased collapsed. He was carried in, and died soon after. Dr. McCarroll said death was due to poisoning by cyanide of potassium. The jury returned a verdict of suicide, and said there was no evidence to show the state of the mind at the time.—Arthur Parsons (56), electroplater, Sheffield, killed himself with this chemical.

Prussic Acid was the suicidal agent used by Francis William Bottom (28) at Sheffield. The source from which the poison had been obtained could not be traced.—George Peter Stufflell (48), an employé of the Civil Service Stores, London, also ended his life with this poison.

Veronal.—See p. 79.

BIRTHS.

DUNDEE.—At 95 University Road, Belfast, on August 6, the wife of James Dundee, Ph.C., of a son.

ROWLANDS.—At Meadowlands, Winchester, recently, the wife of R. A. Rowlands, chemist and druggist, of a daughter.

MARRIAGES.

ROE—COUASNON.—At the Church of Notre Dame de France, Leicester Square, London, W., on August 12, Alfred Roe, pharmacist, 31 Old Compton Street, London, W., to Marie, daughter of the late Monsieur Jules Couasnon, expert géomètre.

WOOD—PERRIN.—At St. Peter's Church, Lowick, Northants, on August 7, by the Rev. A. C. Dicker, Harold Elderkin Wood, Ph.C., 97 St. Albans Road, Watford, son of the late Mr. Rowland Wood, farmer, Clapton, Northants, to Bessie, daughter of Mr. and Mrs. John Perrin, Lowick, Northants.

DEATHS.

BIGGAM.—At Shepherd's Bush, London, W., on August 6, Mr. John William Biggam, chemist and druggist, aged thirty-two. Mr. Biggam qualified in 1903.

CLARK.—At Elmfield, Stanley Road, Leicester, on August 4, Mr. Walter Beales Clark, Ph.C., of Messrs. Clark, Nettleship & Bailey, wholesale chemists, 43 Belvoir Street, Leicester, aged sixty-six. Mr. Clark was a leading layman in the Baptist Church.

RAMSDEN.—On August 8, Mr. William Ramsden, chemist and druggist, Moss Side and Fallowfield, Manchester. Deceased had been in business for about forty years, and passed the Modified examination in 1871. He served on the Chorlton Board of Guardians for many years, acting as chairman for some time, and he was also a magistrate. He was prominent in Cheshire Freemasonry, being elected Junior Grand Deacon in 1888. The interment took place at Manchester Southern Cemetery on August 12, when the large number of mourners included members of the local Pharmaceutical Association.

WRATHALL.—At Prescott Street, Halifax, on August 5, Mr. Harry Vincent Wrathall, dispenser for twenty-six years at the Royal Halifax Infirmary, aged fifty-two.

PERSONALITIES.

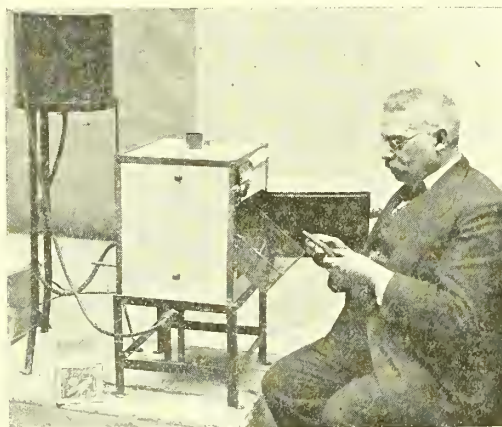
Notes for this section sent to the Editor should be authenticated and must not be in the nature of advertisements.

MR. C. BROWN, 59 King's Road, Sedgley Park, Prestwich, Manchester, has joined the travelling staff of Messrs. Ayrton, Saunders & Co., Ltd., Liverpool, as resident representative for Manchester and district.

MR. THEO SHIPKOFF, of Messrs. Shipkoff & Co., otto-of-rose distillers and merchants, Kezanlik, has sent a telegram from Sofia to his London agents (Messrs. G. P. & J. Baker, Ltd., 5 Giltspur Street, E.C.), stating that business communication has been restored *via* Vienna, and that he hopes shortly to make his European trip.

MR. W. E. KIRKMAN, pharmacist, New Milton, Hants, has two clever children. Last year his daughter won a county scholarship worth 40*l.* a year, tenable for four years, and this year his elder son has been awarded a scholarship, tenable at Bournemouth Grammar School, with free tuition, railway expenses, and 5*l.* a year until he is sixteen years of age. Both children were eleven years of age at the time of obtaining the awards.

MR. FRIEDRICH DETSINYI, druggist, Budapest, is one of our regular readers and a man of many parts. His latest interest is the production of nicotine-free tobacco,



and our illustration shows him sitting beside the apparatus used in the process. We have sampled cigars and cigarettes made by Mr. Detsinyi's process and find them very good.

WILLS PROVEN.

MR. JAMES BRADSHAW LLOYD, manufacturing chemist, Hazeldene, Winton Road, Bowden, who died on June 5, left estate of the gross value of 5,098*l.* 0*s.* 7*d.*, of which 4,527*l.* 18*s.* 9*d.* is net personalty.

MR. JOHN GEORGE KIRTLEY, chemist and druggist, Welsford, Petersville, New Brunswick, formerly in business at Newcastle-upon-Tyne, who died at Welsford on February 17, aged seventy-eight, left estate of the gross value of 761*l.* 11*s.* 9*d.* in the United Kingdom.

MR. GEORGE WILLIAM THOMAS ARROWSMITH, chemist and druggist, Ellangowan, Cecil Park, Pinner, formerly of Whitstable, who died on May 12, aged sixty-eight, at the London Homoeopathic Hospital, Great Ormond Street, W.C., left estate of the gross value of 8,002*l.* 18*s.* 1*d.*, of which the net personalty has been sworn at 2,261*l.* 8*s.*

MR. HARRY SAMUEL PEARMUND, Ph.C., Happpisburgh, Claremont Road, Tunbridge Wells, who died on July 5, left estate valued at 5,622*l.* 5*s.* 6*d.* gross, with net personalty 1,254*l.* 10*s.* 11*d.* Probate of his will, dated July 11, 1893, has been granted to his father, Mr. Samuel Pearnund, 50 Friars Stile Road, Richmond, Surrey. The testator left 100*l.* to his wife, Mrs. Catherine Ann Pearnund, and the residue of his estate upon trust for her during her widowhood.

GAZETTE.

Partnerships Dissolved.

CUNNINGHAM, M., CUNNINGHAM, JAS., CUNNINGHAM, JOS., and CUNNINGHAM, P., Owen Street, Warrington, mineral-water manufacturers, etc., under the style of B. Cunningham; so far as regards P. Cunningham

ORMANDY, W. R., and SPENSLEY, J. W., Barton Arcade, Manchester, consulting chemists and engineers, under the style of Ormandy, Spensley & Co.

STANLEY, J., and DICKIE, J., Whitehaven, Cumberland, wholesale and retail chemists and druggists, dyers, oil, colour, and cement merchants, under the style of Wilson & Kitchin.

FLEAS IN DOGS.—Dr. John Broom (Kirkcubright), in the "British Medical Journal," relates how a Yorkshire terrier dog which seemed to be a special attraction to fleas had this susceptibility destroyed by placing a stick of sulphur in the drinking-water. Dr. Broom emphasises the importance of the point to people living in insect-ridden places, who might keep stick-sulphur in their drinking-water and perhaps suffer less from midges and mosquitoes, to say nothing of fleas.

National Health Insurance.

Administration of Medical Benefit as regards Chemists' Interests.

Pharmaceutical Standing Committee on Insurance (Wales).

Mr. James B. Francis, Hon. Secretary of the Pharmaceutical Standing Committee on Insurance (Wales), addressed the following letter to the Welsh Commissioners:

In reference to the recommendation contained in paragraph 161, p. 510, of the "Report for 1912-13 on the Administration of the National Insurance Act, Part I," that "It would greatly facilitate the future working of the Insurance Committees and the Commission . . . if a National Committee for Wales and Monmouthshire were appointed to bring before the Commission any question affecting the general interests of pharmacists throughout and common to the country," permit me to call your attention and that of the Commission to the following facts:

1. That this Committee, composed of representatives from every local Association of Pharmacists in Wales, was formed on May 30, 1912, under the title of the "National Pharmaceutical Insurance Committee of Wales."

2. That in their letter of June 6, 1912 (11927/1912), the Welsh Commissioners objected to the title of this organisation, and that thereafter the word "National" was deleted from the title.

3. That lists of pharmacists were supplied by this Committee from which the Commissioners made appointments of pharmacists to serve on the Provisional Committees for the whole of Wales.

4. That through the agency of this Committee no fewer than eight new local Associations of Pharmacists have been formed in Wales.

5. That, acting on the instructions of this Committee, I compiled and forwarded to the Commissioners a list of all the pharmacists in Wales who signified their willingness to serve on the panel of chemists for Wales.

6. That, acting on behalf of this Committee, I have had interviews with members of the Welsh Commission, with the deputy Chairman, and the Chief Medical Officer.

7. That this Committee put before the Commissioners the views of the chemists in Wales regarding the supply of drugs and medicines under the Harmsworth Clause.

In view of these facts, the recommendation above referred to comes as a surprise to the members of this Committee, and it is felt that such a recommendation cannot but be very prejudicial to the efficient and satisfactory working of this Committee, and affect its standing with the pharmacists throughout the Principality.

The Secretary to the Commissioners replied as follows:

I am directed by the Welsh Insurance Commissioners to advert to your letter of July 25, and to state that the paragraph numbered 161 on p. 510 of the Report for 1912-13 on the Administration of the National Insurance Act, Part I., was intended more particularly to refer to the inconvenience caused by various committees of pharmacists approaching the Commissioners independently on questions which affected pharmacists throughout the country. The Commissioners fully recognise the assistance given by you to them as set out in paragraphs 3 and 5 of your letter.

With reference to the recommendation contained in the same paragraph of the Report as to the formation of pharmaceutical committees for areas coinciding with the areas of Insurance Committees, I am to say that the Commissioners in several instances had suggested that such committees be formed, and I am also to direct your attention to the new clause introduced in Committee into the National Insurance Act (1911) Amendment Bill, a copy of which is enclosed herewith.

The clause referred to is that of Mr. Glyn-Jones which was printed in the *C. & D.*, August 2, index folio 214.

Medical Benefit Administration.

With special reference to the supply of medicines and appliances.

Breconshire.—At a meeting of the Insurance Committee for Breconshire the Finance Committee reported that the clerk had produced the chemists' accounts for the first quarter, as checked by the Pharmaceutical Standing Committee; deductions amounting to 5*l.* 1*s.* 1*d.* in the total have been made. The sum would be adjusted when settling the second quarter's accounts, which were ordered to be paid.

Bristol.—The Insurance Committee paid up on August 9 to the extent of 80 per cent. of chemists' accounts.

Burnley.—Chemists on the panel have complained of the inadequacy of the payment made to them. Payment in respect of the first quarter was on a basis of 4*d.* per insured person. In reply to a letter from the clerk, the Commis-

sioners say that under the exceptional circumstances payment equal to 6*d.* per insured person, less 10 per cent. of the total amount, may be made in respect of the first and second quarters. The Burnley Insurance Committee have decided to make payment accordingly.

Bury.—At the meeting of the Insurance Committee on August 5 it was reported that, with respect to a chemist's shop being opened within the defined rural area in which medical practitioners are allowed to dispense, the Commissioners had decided that in the event of any such alteration in the area, one month's notice should be given to the doctors on the panel. It was further reported that a question had arisen as to the requirements of the auditors of the accounts, with reference to the nature and extent of the check to which prescriptions should be submitted. This had been placed before the Audit Department of the Commissioners, who had intimated that they had not yet obtained sufficient experience of the matter to enable them at present to express an opinion. As to the measures which a committee should take to secure that the chemists' charges were in accordance with the drug tariff, the Committee decided to have each prescription received for the quarter ending July 14 fully checked, and to defer consideration of the payment of a further sum on account to the chemists until the whole of the doctors' accounts for emergency and rural dispensing have been received.

Cardiganshire.—The Cardiganshire Insurance Committee have referred the question of the accounts of the chemists and doctors to the Finance Committee to deal with.

Devon.—A meeting of medical men and pharmacists was held at Exeter on August 11, under the presidency of Mr. P. F. Rowsell, J.P., when the accounts for the Drug Fund to July 15 were presented and passed. It was stated that cheques will be sent out very shortly, and that in future payments will be made monthly. The meeting was of a pleasant character, and the whole of the arrangements were reported to be working quite satisfactory.

Doncaster.—The local Association have been fortunate in obtaining three representatives upon the District Insurance Committee—Messrs. W. E. Plant, H. W. Shaw, and Harry W. Stiles. At the first meeting of the Committee Mr. H. W. Shaw was elected a member of the Medical Benefit Sub-Committee and Mr. Harry W. Stiles a member and Vice-Chairman of the Sanatorium and Administrative Sub-Committee. The Doncaster pharmacists are working the Act under excellent conditions, perfect harmony reigning between them, the local medical men, and the West Riding Insurance Committee. The Doncaster Pharmacopoeia (the first of its kind to be published), copies of which have been sent as far as America, has been in vogue all the time, and has much facilitated dispensing during the busy hours in the evenings. The chemists have been paid 80 per cent. of their bills.

Falkirk.—At the meeting of the Burgh Insurance Committee held on August 7 chemists' accounts amounting to 14*s.* 7*d.* for the past quarter were submitted. It was decided to pay 90 per cent., and also the 10 per cent. kept over for the first quarter. An amendment was moved that the 10 per cent. remaining for the second quarter be also paid, but this was withdrawn after some discussion. It was stated that the Pharmaceutical Committee had not checked the accounts, and the Chairman said the Commissioners would not allow the Pharmaceutical Committee to be paid for this, and that the question of any other person being paid did not arise.

Glasgow.—The Insurance Committee have given notice that chemists may supply Mead's adhesive plaster, Beiersdorf's belladonna-plaster, lysol, and cyllin, but that the Insurance Committee will not pay for the following: Angier's emulsion, canthos, hazeline cream, Huxley's menthol and winter-green cream, antiphlogistin, capsolin, boric or other medicated wools, and crêpe or other bandages not specially mentioned in the drug tariff.

Gloucester.—At the last meeting of the Insurance Committee the Chairman (Mr. Wood), referring to the chemists' accounts, said he thought it a wise thing to pay 65 per cent. of the total. He went on to say that he was sorry to see that the average cost of the prescriptions had come out very much higher than for the whole of the kingdom. The average for the latter was 6*3*/₄*d.* each, whereas for Gloucester it was 8*3*/₄*d.* last time, and had now gone up to 10*7*/₄*d.* The accounts had been checked by the Pharmaceutical Standing Committee, and the total amount, taking 65 per cent. as the proportion to be paid, was 210*l.* 18*s.* 6*d.* He added that probably by the end of the year, as a result of consultation with the doctors and chemists, the average cost of prescriptions would be lower. Mr. E. H. Spring asked why only 65 per cent. of the chemists' accounts was to be paid; was it not because they had not the money

to pay any more? The Chairman replied in the negative, and added that there is the floating sixpence to draw upon if necessary.

Hampshire.—The County Insurance Committee has paid the balance of the first quarter's dispensing accounts, and the second quarter's less 10 per cent.

Lancashire.—At a meeting of the Lancashire Insurance Committee on August 11 the Medical Benefit Sub-Committee reported on the extensive practice of prescribing stock mixtures, and recommended that doctors and chemists should discuss whether this practice should continue. Upon the motion of Dr. Oldham (of Lancaster), who said he hoped the County Committee would declare in favour of doing away with stock mixtures, the subject was referred back to the Sub-Committee.

Preston.—A local firm of chemists having written to the Medical Sub-Committee asking if they were allowed to supply to insured persons proprietary articles, including certain makes of malt extract and cod-liver oil, it has been decided by a meeting of the chemists and the Sub-Committee that no proprietary articles should be allowed to be prescribed or dispensed, but exception was made in regard to malt extract and cod-liver oil. The need for standards of strength was recognised, and the Insurance Committee has decided that a printed list of the preparations of standard strength allowed to be prescribed and dispensed should be sent to doctors and chemists. The chemists' accounts for the past quarter amount to 1,197l. 1s. 6d.

Southampton.—The chemists' accounts have been paid in full for the second quarter, the Committee having decided that, as there is sufficient money in hand, they would only retain the 10 per cent. deducted on the first quarter. There are sufficient funds to pay all the chemists' accounts. The number of prescriptions was not much smaller in the second quarter than in the first three months.

Stockton.—A meeting of the local Association was held in Tate's Café on July 29, the President (Mr. J. M. Skilbeck) in the chair. There was a good attendance of members. A communication was read from Mr. W. J. U. Woolcock on local organisation. A short discussion took place on the working of the National Insurance Act, and elicited the general opinion that the Act is working smoothly in Stockton. So far there has been no serious cause for complaint. At the time of the meeting members had not received their cheques for the second quarter's work, but since then they have received 90 per cent. of the account. The balance of 10 per cent. from the first quarter's account is still being retained by the Durham Insurance Committee. A discussion then took place on the price of patent medicines, and a fixed price was arranged for certain proprietaries. Mr. W. Finlayson has been appointed a member of the District Insurance Committee to represent the pharmacists on that body.

West Bromwich.—Chemists have been paid 85 per cent. of their accounts. Last quarter the proportion was 75 per cent.

West Hartlepool.—The Insurance Committee has paid two-thirds of the amount of chemists' accounts for the July quarter. The dispensing statistics, which are interesting, are as follows: Prescriptions dispensed—April quarter 18,000, July quarter 15,717; total value of accounts—April quarter 524l., July quarter 502l.; average price per prescription—April quarter 7d., July quarter 7.67d.; average price per insured person—April quarter 6.33d., July quarter 6.06d.

Notes.

THE NATIONAL HEALTH INSURANCE COMMISSION (SCOTLAND) has issued a circular explaining how insured persons in Scotland, entering Insurance for the first time, may obtain Medical Benefit. It is stated that the form of application for selecting a doctor can be obtained from, among others, any chemist on the panel.

THE CHANCELLOR OF THE EXCHEQUER, in addressing a huge open-air meeting of miners at Sutton-in-Ashfield on August 9, referred to the working of the National Insurance Act. Alluding to Medical Benefit, he said there are 18,000 medical men on the doctors' panel, "and there are 9,000 on the register of chemists who are prepared to supply on Government terms the drugs prescribed by the doctors, and any insured person suffering from any disease which the ordinary general practitioner can attend to can claim free medical attendance and the best drugs in the Pharmacopoeia without any charge." Later on in the same speech Mr. Lloyd George said that this year 5,625,000l. would be spent on Medical Benefit, the doctors being paid 4,375,000l., the chemists 1,037,500l., and an additional 312,000l. would be divided between them.

WESTMINSTER WISDOM.

The Week in Parliament.

HIGHLAND AND ISLANDS (MEDICAL SERVICE) BILL.

This Bill passed the third reading in the House of Commons on August 6, and is to receive the Royal assent to-day.

INSURANCE ACT AMENDMENT.

The Insurance Act Amendment Bill has passed the House of Lords, and to-day (Friday) is receiving the Royal assent.

VENEREAL DISEASES.

The Prime Minister announced on August 11 that it is the intention of the Government to appoint a Royal Commission to inquire into the causes and treatment of venereal diseases. The scope and character of the Commission are still under consideration.

SALE OF FOOD AND DRUGS BILL.

This Bill, which was introduced on August 6 in the House of Commons by Mr. John Burns, makes further provision for securing the purity of articles of food. Power is given to the Local Government Board to make regulations (1) defining the nature, substance, and quality of articles of food; (2) prohibiting the sale of articles not made in accordance with the regulations; and (3) authorising the inspection of processes of manufacture.

OVERSEAS PARCEL-POST INSURANCE.

The Postmaster-General stated on August 7 that the Post Offices of Canada and of the Union of South Africa have been invited from time to time to adopt a system of insurance for parcels sent by post to and from the United Kingdom similar to that which is in operation between the United Kingdom and nearly all other parts of the British Empire, but have not yet seen their way to do so. The matter is being brought to their attention again.

THE END OF THE SESSION.

The Session of 1913, unless unforeseen events have taken place in the meantime, is being prorogued as we go to press, and the momentous Session of 1914 will probably open in the second week in February. Among a large number of Government and other measures that have been abandoned for the Session are those relating to character notes, calendar reform, daylight-saving, deaths registration and burials, hops, merchandise marks, milk and dairies, nurses' registration, sale of food and drugs, abolition of vivisection, weekly rest-day, Vaccination Acts repeal, Veterinary Surgeons Act (1881) Amendment Bill, and Animals (Anæsthetics) Bill.

PATENT MEDICINES COMMITTEE REPORT.

The report of the Select Committee on Patent Medicines, which was made at the end of last Session and ordered to be printed on February 6, was issued last week. It gives a list of members present at each meeting held from May 2, 1912, to February 6 of this year, and, in addition, a table of expenses granted to witnesses. The total amount granted was 9l. 17s. to two witnesses. Mr. "A. B.," the anonymous witness examined on July 16, and described as a licensed victualler, was allowed 15s. during absence from home, and 2l. 11s. 6d., his railway fare to and from London. Dr. Norman Walker, of Edinburgh, received 6l. 10s. 6d., the expenses of journey to London and back.

INDIAN OPIUM REVENUE.

Mr. Montagu, Under-Secretary for India, in the course of his statement regarding the East India revenue accounts in the House of Commons on August 7, said that two years ago he was doubtful whether, in view of the loss of the Chinese opium revenue, it would not have been necessary to impose new taxation in India. He added that this had not been necessary, owing to the buoyancy of Indian finance. In the present year the chief feature in the Budget Estimates is that although the estimate anticipated from the opium revenue is only 306,000l., or 4,250,000l. less than last year, yet without any increase of taxation, without any abandonment of

necessary or desirable expenditure, the Government is estimating for a surplus of nearly 1,500,000.

MEDICAL SERVICE IN JAMAICA.

The Colonial Secretary informed Dr. Chapple, M.P., in the House of Commons on Wednesday that the information at his disposal indicates that the medical service of Jamaica is as good as financial exigencies permit, and that every attention is being paid to its improvement. In these circumstances he would not feel justified in calling for a detailed report, but he would invite the Governor to say whether he considers that there are any serious grounds for dissatisfaction with the present system. Mr. Harcourt also promised to ask the Government to consider whether increased facilities are required to be given to ordinary medical practitioners in the island for visiting the hospitals.

CHINESE OPIUM TRAFFIC.

A deputation waited on the Marquis of Crewe and Sir Edward Grey at the Foreign Office on August 6, to express regret that the Government had not yet released China from the obligation to permit the importation of 20,000 chests of Indian opium now in stock at Hong-Kong and the Treaty Ports. Lord Crewe, in his reply, said that Chinese opinion and practice are not unanimous with regard to the ending of the opium trade, but already there is a great improvement. There are practical difficulties in disposing of the opium stocks at Shanghai and elsewhere in China. The Government of India has no desire to encourage the export of opium to China. Sir Edward Grey described the scheme which was to bring the trade to an end in 1916, under which the Indian Government has agreed to send no more opium to China. It was doubtful, he said, whether the accumulated stocks at Shanghai are really an obstruction to China. While China continues to produce three times as much opium as these stocks, they could not reasonably ask the British Parliament to buy the stocks.

MILK AND DAIRIES BILL.

Mr. John Burns, President of the Local Government Board, on August 6 introduced his long-promised Milk and Dairies Bill, which, however, will not be further proceeded with this Session. The main objects of the Bill are to provide for (1) the more effective registration of dairies and dairymen; (2) the inspection of dairies and the examination of cows therein, and the examination of milk; (3) the prohibition of the supply of milk from a dairy where such a supply has caused or would be likely to cause infectious diseases, including tuberculosis; (4) the prevention of the sale of tuberculous milk; (5) the regulation of the importation of milk, so as to prevent danger to public health arising therefrom; (6) the issue of regulations for securing the supply of pure and wholesome milk; and (7) the establishment by local authorities in populous places of milk depôts for the sale of milk specially prepared for infants. The provisions as to registration supersede the provisions as to the registration of dairies contained in the Contagious Diseases (Animals) Acts and the orders made thereunder. The provisions as to the inspection of dairies and the prohibition of the supply of milk are based on the provisions of the Public Health (Scotland) Act, 1897. The clause as to the prohibition of the sale of tuberculous milk is taken from the model milk clauses, which have been incorporated in many local Acts, but the scope of the enactment is somewhat extended.

INOCULATION RESEARCHES.

Mr. Lynch asked the President of the Local Government Board on August 7 whether his attention has been called to recent researches on the Continent, in various scientific centres, which indicate that inoculation with the germs of certain diseases may render the subject more susceptible to the attacks of other diseases; whether, in view of this fact, he has investigated the effect of vaccination on the resistance of children to anterior poliomyelitis, which disease is increasing in frequency and virulence, and which now presents a greater danger to children than smallpox; and whether his Department

proposes to establish any system of inoculation against anterior poliomyelitis?—Mr. Burns replied that his attention has been called to the researches mentioned. The establishment of any system of inoculation against anterior poliomyelitis is not practicable at the present time.

Mr. Lynch also asked the President of the Local Government Board whether, in view of the fact that in the cases of tuberculosis, typhoid fever, diphtheria, and certain other diseases, the specific germ is known, cultures and attentuations are possible, and standardisation may be roughly obtained, his Department will set on foot a national system of inoculation against these diseases; or whether, if he holds that the diminution of the evil of these diseases both in regard to extent and virulence has been brought about by various agencies within control, notably by increased attention to sanitary systems, he will attach yet greater importance to this aspect of the question of public health, and make use of it rather than of indiscriminate inoculation as his chief means of combating smallpox?—Mr. Burns replied that as at present advised he is not prepared to set on foot a national system on inoculation against the diseases mentioned. He, however, drew the hon. member's attention to an Order issued by the Local Government Board in 1910 giving powers to local authorities under certain conditions to supply diphtheria antitoxin and medical assistance in connection therewith. His Department always attaches the greatest importance to improved sanitation.

International Medical Congress.

THE OPENING CEREMONY.

THE gathering that almost filled the Albert Hall on Wednesday, August 6, was magnificent in several ways: as regards numbers, for there were 9,000 people present; on account of the brilliancy of the display of uniforms and robes, orders and ribbons, blazing stars and jewels; and because of the intellectual distinction of those present. It was indeed a fitting send-off for the seventeenth International Medical Congress. Prince Arthur of Connaught, on behalf of King George, opened the Congress, and the great audience stood up to hear the Royal message. In welcoming the delegates he struck a happy note. They were carrying out, he said, the Imperial ideal, for it was not the United Kingdom alone but the entire British Empire that welcomed the Congress, for Canada, Australia, New Zealand, South Africa and India were all represented on the various committees. It fell to Sir Edward Grey to express the official welcome of the Government, and after a few sentences, uttered in the characteristically impressive and sincere manner of our great Foreign Secretary, the meeting settled down to listen to the opening address of the President, Sir Thomas Barlow. The President's opening speech was one of those gems of oratory which charm not by their eloquence but by their polish, their good taste, and their perfect setting. Recalling in rapid succession the names of many of the giants who were present when the Congress met in London a generation ago, and who are now no longer with us in the flesh, he spoke of Paget, Jenner, Gull, Wilks, and Gairdner, the great teachers of clinical medicine; Spencer Wells, Thomas Keith and Lawson Tait, the pioneers of abdominal surgery; Lister, Jonathan Hutchinson, Hughlings - Jackson, and Huxley; and among foreigners he spoke of Virchow, Volkmann, Koch, Esmarch, and Pasteur, the



SIR THOMAS BARLOW,
President of the Congress.

great Frenchman who, though not a medical man, exercised a profound influence by his discoveries on the medicine of the world. If, said the President, it had not been for the work of Pasteur, Lister, and Koch, expounded to them thirty years ago, how poverty-stricken would have been the output of medicine and surgery in the present Congress. The great developments in bacteriology and parasitology were referred to, and the brilliant work that had resulted in serum therapy and vaccine therapy, and through them the conquest of diphtheria and the prevention of typhoid, and in a rich harvest in which were gathered in the secrets of Mediterranean fever, plague, malaria and sleeping sickness. He paid a tribute also to our American brethren for their splendid hygienic work in Cuba, in Panama, in the Philippines, and in Costa Rica. In concluding his address the President thanked the delegates for the treasures, new and old, of observation and experiment, and of a ripe experience which they had brought to the Congress for the common weal.

"I welcome you to our dear country, this ancient home of freedom, and I speak not only for the medical men of the British Isles, but for our brethren of the Overseas Dominions of this great Empire, who join with us in our cordial greeting. May this Congress add to the common store of fruitful and useful knowledge, may it increase our good fellowship, our mutual understanding and co-operation, and may it help to break down the barriers of race and country in the onward beneficent march of world medicine."

Immediately following the address came a great procession of representatives of different nationalities, five-and-twenty of them, and each had to deliver a speech in turn, the popularity of which was in inverse ratio to their length, the short speeches being the most warmly applauded by the weary audience.

MEDICAL PROGNOSIS.

Leaving the sections for another occasion, we take note of a few of the salient points in some of the general addresses. The address in medicine was delivered by Professor Chauffard, of Paris, who took for his subject "Medical Prognosis: its methods, its evolution, its limitations." Of chief interest to pharmacists were his remarks dealing with therapeutic advances, in which he spoke of the conquest of rheumatic fever by salicylates, of diphtheria and the immense change brought about in the prognosis of that disease by antitoxin, of Pasteur's triumph over rabies, that most terrible and relentless of diseases, of the greater chances of the successful treatment of syphilis by arsenic and mercury, of the atoxyl treatment of sleeping sickness, of amœbic dysentery, in which Leonard Rogers' new treatment by emetine has reduced the death-rate from 34.6 to 8 per cent. Every disease, he said, is falling back before the ceaseless efforts of therapeutics and hygiene, everywhere prognosis is undergoing an evolution and holding out fresh hopes.

REALINEMENTS IN GREATER MEDICINE.

The address in surgery was delivered by Professor Harvey Cushing, of Harvard University, his subject being "Realinements in Greater Medicine: their effect on surgery and the influence of surgery upon them." The first portion of the address took the form largely of a defence of vivisection and constituted one of the most brilliant and convincing arguments ever offered on that much-debated theme. Speaking of the transformations that have been achieved through the knowledge gained from experiments on animals, Dr. Cushing advanced a new argument, the benefits derived by animals themselves. The weakest point in the opposition to experimentation on animals on the basis of cruelty lies in the fact that the animals whose preservation is desirable benefit from these investigations as greatly as man. There is no more notable example of this than in the case of man's companion the dog. Through the deserved attachment that has grown out of this companionship a sentiment has arisen which would exempt the canine species from experimentation. But had such a law been on the statutes, Copeman's discovery of the bacterial cause of distemper, and of a successful method of inoculation against this most fatal and distressing canine disease, would have been impossible; and the same is true of the fatal malignant

jaundice, conveyed by the bite of a dog tick, and so prevalent in some parts of the world as to make the rearing of dogs impossible, and for which Nuttall has found an effective remedy and means of prevention. The lecturer suggested that the large sums of money which have been wisely devoted to the prevention of cruelty to animals, and from which much good has been done in the past, and which are now used largely to oppose advances in the attainment of knowledge by research for the sake of man, at some expense to animal life, and which are expended on the one hand in the wholesale sacrifice of stray and diseased animals, and on the other in the destructive criticism of those called vivisectionists, would be much better employed in constructive investigation by which the animals themselves would benefit. There could be no better outlet for the present wasteful methods of many of these organisations than the establishment of veterinary hospitals in which modern methods of treating disease could be employed, further investigations made and students of veterinary medicine taught.

Professor Ehrlich's address, which was delivered before a large audience last Friday, dealt with

THE PROGRESS OF CHEMOTHERAPY.

The Professor, who received a most cordial greeting, spoke in German, and introduced his subject by passing a tribute to British science, mentioning particularly Jenner, Lister, Manson, Ross, Bruce, Leishman, and Wright. He dealt with salvarsan, giving a highly technical account of his work, and then touched on an interesting subject—namely, idiosyncrasy to drugs, and to such articles of food as strawberries and crabs, which in certain individuals produce nettle-rash. In proposing a vote of thanks to Professor Ehrlich, Sir Thomas Barlow hoped that his name would be inscribed on the same magnificent roll as that which bore the names of Pasteur, Lister, and Koch.

The section in Professor Bateson's address on

HEREDITY,

which will touch the popular imagination chiefly, was his remarks on the shortcomings of eugenics. There was, he said, some prospect that we might rid the community of mania only to leave it gravely infected with dullness. In the experimental analysis of genetics we have an instrument of extraordinary power, and it is certain that genetic science must in the future profoundly influence the course of human thought, and ultimately the conduct of society.

PUBLIC HEALTH.

The closing address was delivered on August 12 in the Albert Hall, by the Rt. Hon. John Burns, M.P., who took as his subject "The Relationship between Medicine and Public Health." Mr. Burns had not been five minutes on his feet before he was interrupted five times by advocates of women's suffrage, but he took the interruptions with good humour, remarking in reference to one of them, "Thanks to a good mother and a sensible doctor, my voice is strong enough to overcome them." The interrupters were all quickly and quietly marched out, and the speech went on undisturbed to the end. Mr. Burns dealt first with the great saving of life during the three years 1909-11, as compared with death rates prevailing when the Congress met in London in 1881, the total saving of life being 367,000 during the three years. Of typhus fever the statistics show that in England and Wales the average mortality for ten years before 1881 was 1,400, in the three years following 1909 the average was 10 per annum, and with a much larger population. Similar figures obtained, though not so striking, in other diseases. The registration of disease was referred to, and some details furnished of the relationship to public health of the labours of Pasteur, Lister, Semmelweis, and Koch. The address was listened to with close attention by a large audience, who, on the call of the Chairman, Sir Thomas Barlow, awarded Mr. Burns a hearty vote of thanks.

THE IMPORTS of chemical products, drugs, and pharmaceutical specialities into São Paulo, Brazil, during 1912 amounted in value to 410,590%, against 311,769% in 1911.

Structure of the Soya Bean.

By T. E. Wallis, B.Sc., F.I.C.

A brief abstract of this British Pharmaceutical Conference paper was given in our Summer Issue.

SOYA BEANS, which average 8 mm. in length, 7 mm. in breadth, and 6 mm. in thickness, are roundly ovoid in shape, the hilum in the middle of one of the longer being 3 to 4 mm. long. On soaking they take up more than 1.25 times their own weight of water and expanding evenly become more kidney-shaped. About 99 per cent. of the beans are pale yellow, there being also a few darker coloured beans (black or brown) of smaller size and a more elongated form.

Structure of the Seed-coat.—A transverse section of the testa shows an epidermis composed of closely packed oblong cells ($45.5\ \mu$ long and $14\ \mu$ broad), with long axis at right angles to the outer surface. The cellulose walls are much thickened, with longitudinal pits at the upper ends. Under the epidermis is a single row of thick-walled "bearer cells" of the usual hour-glass shape, in contact only at the apex and base. These vary in length (from 40 to $120\ \mu$), the longest cells being found near the hilum. In breadth they are from 30 to $40\ \mu$ at top and bottom and from 20 to

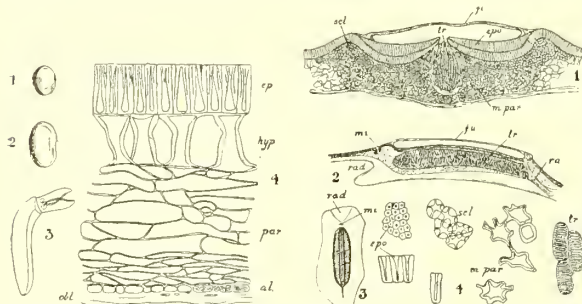


FIG. I. 1. Unsoaked soya bean. 2. Bean after soaking in water. 3. Radicle and plumule removed from a bean. 4. Transverse section of seed-coat: *ep*, epidermis; *hyp*, hypodermis composed of "bearer cells"; *par*, parenchyma; *al*, aleurone layer; *obl*, collapsed parenchyma.

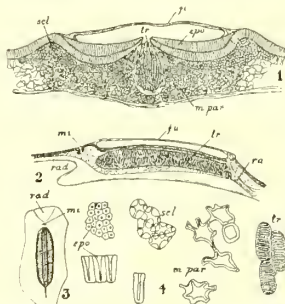


FIG. II. 1. Transverse section through the hilum furrow. 2. Longitudinal section of the same. 3. Surface view of hilum. 4. Isolated cells from region of the hilum. *fu*, remains of the funiculus; *scl*, sclerenchyma; *epo*, upper layer of epidermis; *m.par*, modified parenchyma; *tr*, tracheids; *mi*, micropyle; *ra*, raphe; *rad*, pocket for radicle.

$35\ \mu$ at the middle. Several rows of thin-walled cellulose parenchyma follow, the cells of which are elongated tangentially, and the inner rows are much crushed. The total width of this layer is about $122\ \mu$. Immediately within this parenchyma is a well-marked single layer of rectangular cells (15 to $25\ \mu$ long by $10\ \mu$ wide) containing small round aleurone grains staining readily with iodine but giving no reaction with Millon's reagent. A hyaline band of collapsed cells about $10\ \mu$ in thickness is found on the inner side of the aleurone layer.

At the hilum, as is usual in seeds of this Natural Order, the epidermis is doubled and split longitudinally. Below the opening are tracheids continuous with those of the raphe. The thin papery remains of the funicle cover the hilum. The epidermal cells in this region are rather smaller and not pitted in the same way, while the "bearer cells" are replaced by thick-walled and deeply pitted sclerenchyma cells (30 to $50\ \mu$ in either direction) of from one to eight or nine cells in thickness. The parenchyma below this is also modified, consisting of rounded cells having thick lignified walls forming a loose tissue containing numerous intercellular spaces.

The group of tracheids (about 0.35 mm. deep, 0.15 mm. wide, and 2.8 mm. long) is surrounded by three or four rows of thin-walled cellulose parenchyma. The tracheids (60 to $85\ \mu$ long and $30\ \mu$ wide) have long transverse pits, giving them a scalariform appearance.

Surface Preparations.—The seed-coat after soaking for a few hours in caustic-soda solution is easily teased out with needles. The epidermis consists of small polygonal cells (15 to $20\ \mu$ in either direction) with a faint line of separation. From above the lumen appears slit-shaped, with

numerous pits, but from below the lumen is larger and no pits are visible. These smaller cells at the hilum are polygonal (10 to $15\ \mu$) and without pits, and the lumen appears as a central dot. The "bearer" cells (30 to $50\ \mu$ in diameter), seen from above, form a continuous layer without intercellular spaces, the double circle in the centre of each

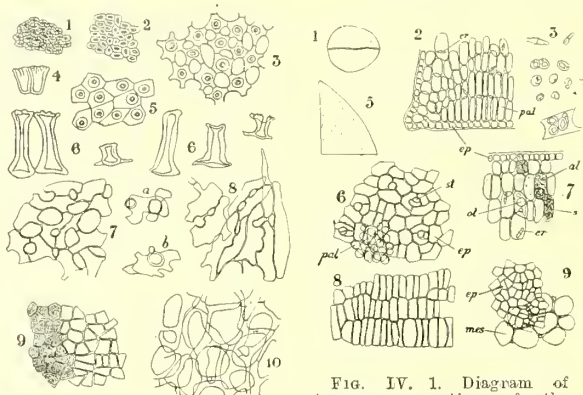


FIG. III. Surface preparations from the seed-coat. 1, epidermis from above; 2, epidermis from below; 3, hypodermis from below; 4, two epidermal cells; 5, hypodermis from above; 6, isolated bearer cells; 7, 8, 10, cells of the parenchyma proceeding from the outside to the inside; 9, an isolated cell from 7; 11, an isolated cell from 8; 12, aleurone layer; aleurone grains are shown in a few of the cells.

FIG. IV. 1. Diagram of transverse section of the cotyledons. 2. Corner of a transverse section of a cotyledon, showing palisade tissue of flat face. 3. Crystals of calcium oxalate. 4. Aleurone grains. 5. Portion of 1 enlarged to show distribution crystals (represented by short dashes). 6. Epidermis from flat face of cotyledon, surface view. 7. Portion of a transverse section of a cotyledon, showing epidermis from curved side and the underlying parenchyma. 8. Epidermis of radicle, surface view. 9. Epidermis from curved face of cotyledon. *cr*, crystal of calcium oxalate; *ep*, epidermis; *al*, aleurone grain; *s*, starch grain; *ol*, oil globule; *st*, stoma; *pal*, palisade tissue; *mcs*, mesophyll.

corresponding to the narrowest portion. From below the appearance is similar, but the cells are stellate, with numerous intercellular spaces. The large-celled parenchyma shows a tendency to stellate structure and becomes more elongated in the inner layers, where the tissue assumes the form of an open meshwork. The aleurone layer is composed of polygonal cells (15 to $35\ \mu$ in either direction) with evenly thickened walls.

Structure of the Embryo.—The embryo consists of two large cotyledons and a small radicle and plumule. A cotyledon in transverse section is semilunar in shape and bounded by a small-celled epidermis (10 to $15\ \mu$ wide and $15\ \mu$ high). On the flat side of the cotyledon three rows of cells next the epidermis form a well-marked palisade tissue (average length $50\ \mu$, and width about $15\ \mu$). The remainder of the tissue is made up of rounded polygonal cells (from 30 to $50\ \mu$ long and 15 to $25\ \mu$ wide) with small intercellular spaces. All the cells are filled with closely packed aleurone grains and numerous droplets of fixed oil. A few small starch-grains in sections from certain seeds probably indicate that these seeds are unripe. A fair number of small prismatic crystals of calcium oxalate, arranged in pairs end to end, are scattered through the tissue of the cotyledons (for number see Fig. IV., 5). The crystals are easily overlooked, but become plainly visible by polarised light. The double crystals (about $24.5\ \mu$ long and 4 to $5\ \mu$ wide) have an unusual and characteristic shape (see Fig. IV., 3). The aleurone grains (3.5 to $10.5\ \mu$ in diameter) are oval or irregularly oval in shape. They dissolve in caustic-soda solution and in 10-per-cent. sodium-chloride solution, and are stained yellow by iodine and by picric acid and red by eosin. The crystalloids are best seen after double-staining with picric acid and eosin; the globoid is not always easily visible, but can be seen in many of the grains. The radicle is about 5 mm. long, and the plumule, which stands at right angles to the radicle, is 2 mm. long (see Fig. I., 3). The surface of the radicle consists of very thin-walled parenchyma, obviously in a state of division, the longer axes of the rectangular cells (25 to $60\ \mu$ long and 10 to $28\ \mu$ wide) being at right angles to the length of the radicle. The cotyledons are epigeal (Fig. V.).

The Powder.—The powder should be examined mounted in iodine-water to show up aleurone and starch, if present, and in chloral glycerin for cellular structure. Polarised light quickly shows up both crystals and any foreign starch grains present. Phloroglucin and hydrochloric acid emphasise the general absence of lignified elements.

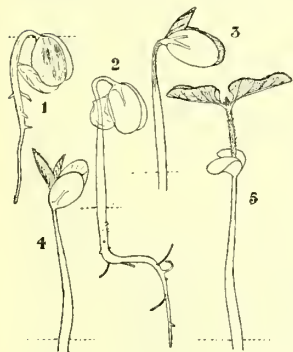


FIG. V. Five successive stages in the germination of the soya bean. The ground line is dotted.

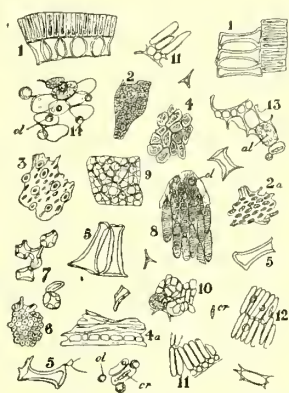


FIG. VI. Powder of soya bean. 1. Palisade epidermis and bearer cells in transverse section. 2. Palisade epidermis in surface view from above. 2a. The same from below. 3. Palisade epidermis and bearer cells in surface view. 4. Aleurone layer within seed-coat in surface view. 4a. The same with compressed parenchyma in section. 5. Isolated bearer cells and portions of such cells. 6. Upper layer of double epidermis from hilum, in surface view. 7. Modified parenchyma and sclerenchyma from region of hilum. 8. Tracheids from hilum-furrow. 9. Epidermis and underlying cells from flat face of cotyledon. 10. Epidermis and underlying cells from rounded face of cotyledon. 11. Epidermis of flat face and palisade cells of cotyledon in transverse section. 12. Palisade cells from cotyledon. 13. Epidermis and cells of mesophyll from rounded face of cotyledon. 14. Cells of mesophyll of cotyledon. al, aleurone grains; ol, oil globule; cr, calcium oxalate crystals.

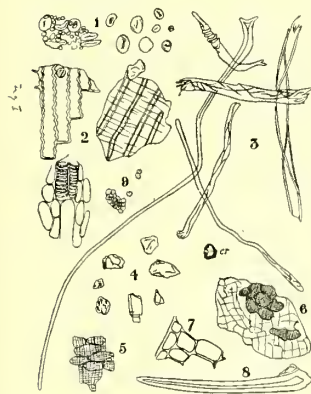


FIG. VII. Foreign particles found in a commercial specimen of soya-bean meal: 1, barley starch, some grains partly gelatinised; 2, three pieces of barley husk; 3, hairs of cotton-seed; 4, grains of sand; 5, 6, 7, and 8, particles of powder not identified, but not belonging to soya bean; 9, rice starch; cr, a crystal foreign to soya bean.

The cells of the cotyledons frequently break up into small fragments, appearing as triradiate pieces with a small triangular intercellular space in the centre. The bearer cells also are often broken up.

The most characteristic elements of the powder are: (1) The remarkable calcium-oxalate crystals; (2) the bearer cells; (3) the outer epidermis of the seed-coat, to which the layer of bearer cells is frequently attached; (4) aleurone layer, lining the inside of the seed-coat; (5) general absence of lignified structures and of starch; (6) entire absence of hairs.

Black and Brown Beans.—The colour of these is shown in sections to be due to pigment in the epidermal cell walls.

Commercial Cake and Meal.—The first specimen of meal examined, which was obtained from a provincial dealer, was badly adulterated with dried grains and cotton-seed (Fig. VII.).

A specimen of soya-bean cake supplied by Professor Greenish contained a considerable admixture of pine-wood sawdust and also a small amount of cotton-seed hairs. Another specimen of soya-bean cake was fairly pure, but even this showed a small quantity of cotton-seed hairs. These results seem to indicate that commercial cake and meal are commonly adulterated, and also suggest the probability that soya-bean oil is frequently adulterated with cotton-seed oil.

TRADE-MARKS.

Objections to the registration of any of the undermentioned applications must be stated on Form T.M. No. 7 obtainable at Money Order Offices for £1 and lodged with Mr. W. Temple Franks, Comptroller-General, Patents Office, 25 Southampton Buildings, Chancery Lane, London, W.C., within one month of the dates mentioned.

The figures in parentheses refer to the classes in which the marks are desired, for a list of which, with particulars as to registration, see "The Chemists' and Druggists' Diary," p. 444.

(From the "Trade-marks Journal," July 23, 1913.)

Floral device with words "GERARDS MEADOWSWEET" ("Meadowsweet" disclaimed); for toilet-soap (48). By Gerard Bros., Ltd., New Basford, Nottingham. 350,543.

"SAMEYAMA"; for perfumery, etc. (48). By E. Rimmel, Ltd., Darnley Road, Hackney, London, N.E. 350,987.

"FICHTOLIN"; for perfumery, etc. (48). By H. Zentner, 11 Neubaugasse, Vienna. 351,840.

"CAREESANTE"; for perfumery, etc. (48). By The Crown Perfumery Co., Sidney Road, Homerton, N.E. 352,325.

(From the "Trade-marks Journal," July 30, 1913.)

"PERATOL"; for photographic chemicals (1). By L. Gevaert & Co., 23 Septe Straat, Vieux-Dieux, Antwerp. 352,427.

"ORTAMINE"; for all goods (1). By The Badische Co., Ltd., 2 Samuel Ogden Street, Manchester. 353/197.

"SCOUT," with picture of same, for chemicals (2); "ELEPHANT BRAND," with picture of same, for perfumery, etc. (48). By E. Cook & Co., East London Soap-works, Bow, E. 351,942, 352,862.

"SANOLO"; for all goods (2). By L. H. Thompson & Co., 16 South Castle Street, Liverpool. 352,838.

"CALCHOR"; for medicinal chemicals (3). By Endre Barta, 44 Baross-ut, Buda Pesth. 352,309.

"RADEMANIT"; for medicinal chemicals (3). By Actien-Gesellschaft Der I. Oesterr. Ceresinfabrik H. Ujhely & Co. Nachfolger, 39 Schiesstgasse, Stockerau, Lower Austria. 352,480.

"LICUS"; for a medicated hair-lotion (3). By G. H. Stoker, 516 Oxford Street, London. 352,546.

"SALURIC"; for medicinal preparations (3). By Blyton, Astley & Co., 76 Gordon Street, Lower Broughton, Manchester. 352,571.

Device of chains, with words "CHAIN BRAND"; for medicinal chemicals (3), for non-medicated instruments, etc. (11), and for indiarubber and gutta-percha goods (40). By Johnson & Johnson, corner of George and Hamilton Streets, New Brunswick, New Jersey, U.S.A. 352,795/6.

"LUFETA"; for medicated wool (3). By The David MacQueen Co., 13 Paternoster Row, London, E.C. 352,711.

"ISOZONE"; for a medicated preparation (3). By Colonel J. A. Fearon, 65 Mount Park Road, Ealing, W. 352,800.

"BYNCARVIN"; for a medicated wine (3). By H. Mason, 83 The Broadway, Bexley Heath, Kent. 352,951.

"CHLORATOS"; for all goods (8 and 15). By J. Trotter, 40 Gordon Street, Glasgow. 353,049/50.

Device of medal, with letter "G." and words "GOODWIN'S, MANCHESTER"; for goods (47) and for perfumery, etc. (48). By C. C. Goodwin, Ordsall Lane Soap-works, Manchester. 352,310/1.

"VROK" in facsimile writing; for skin-preparations (48). By Cora Robertson, 117 Queen's Road, Bayswater, London. 349,956.

"MYORA"; for toilet preparations (48). By J. C. Gambles, 20 Little Britain, London. 350,877.

"MERRY WIDOW" and "VIUDA-ALEGRE"; for perfumery, etc. (48). By F. Wolff & Sohn, Durlacher Allée 31, Baden, Germany. 351,903.

"SANMAHI"; for perfumery, etc. (48). By T. F. Bristow & Co., Ltd., 13 St. James's Walk, Clerkenwell, London. 352,169.

"DORODO"; for preparations for the teeth (48). By Pagets Compounds Co., 5 Upper James Street, London. 352,351.

"WITCH"; for all goods (48). By C. H. Parsons & Brother, Ashby-de-la-Zouch, Leicestershire. 352,407.

"HELVITO"; for perfumery, etc. (48). By J. Ehrlich, 114-116 Copenhagen Street, King's Cross, London. 352,697.

"FLOATOMEAL"; for perfumery, etc. (48). By D. & W. Gibbs, Ltd., High Street, Wapping, London. 352,953.

"HERGESSE R.G.S."; for perfumery, etc. (48). By Raoul Grimoin-Sanson, 20 Rue Chanzy, Nanterre (Seine), France. 353,200.

"EXALL"; for all goods (48). By L. T. Flittner, Electra House, Finsbury Pavement, London. 352,965.

TRADE NOTES.

IGLODINE.—The Iglodine Co., Iglodine Buildings, Newcastle, announce in our advertising columns a bonus offer on purchases of their special preparations. The offer holds good for a month.

PRICE-LIST.—Messrs. May, Roberts & Co., Ltd., 7, 9 and 11 Clerkenwell Road, London, E.C., have just published their half-yearly price-list revised up to August. Those chemists who have not received a copy of the list and desire to do so should apply for one.

"CAMERA HOUSE CINEMATOGRAPH JOURNAL" is the title of a new monthly publication which is being issued by Messrs. W. Butcher & Sons, Ltd., Camera House, Farringdon Avenue, London, E.C. The first number was issued this week, and deals with films and cameras used in cinematograph work.

LA VANDER CROP.—Messrs. Stafford Allen & Sons, Ltd., Cowper Street, London, E.C., send us a sample of the lavender-flowers grown at their farms. It is one of the finest specimens we have ever seen, and bears out the favourable reports from Long Melford on the crops which we have published in previous issues.

A **PAPIER POUDRÉ PAGE** appeared in the "Daily Mail" of August 7, and is reproduced in the advertisement in this issue of Papier Poudré, Ltd., 23 Somerset Street, London, W. This should help considerably the sale of this popular toilet article, which sells particularly well during the holiday season. The proprietors ask chemists to look to their stocks so as to be able to meet the increased demand.

THERMOGENE BONUS SCHEME.—The Thermogene Co., Ltd., Haywards Heath, advertise in this issue that they are shortly submitting to chemists particulars of a special bonus offer regarding the supply of Thermogene curative wadding. The profit is placed at 50 per cent. on the outlay. An advertising campaign is to be entered upon before the winter season.

THE AVIATION DISASTER.—Colonel S. F. Cody, whose unfortunate death occurred last week, was one of the

pioneers of flying in this country, and had done important work for the British War Office with aeroplanes of his own design. He was the winner of the British Michelin Trophies in 1910 and 1911, the British Empire Michelin Trophy, No. 2, in 1911, and the British War Office Competition, 1912. He had been awarded the gold medal of the Royal Aero Club, and his was the only British machine to finish in the 1,010-mile circuit of Great Britain, 1911.

An interesting fact is that he always carried "Tabloid" first-aid as his medical equipment, and reported on it as follows:

"The 'Tabloid' First-Aid Case has always been in its place on my machine, and I have found the contents of inestimable value on numerous occasions."

The arrow in the illustration indicates the position of the "Tabloid" first-aid on his machine.

MEDICAL EXHIBITION.—The exhibition held at the London University, Imperial Institute, South Kensington, in connection with the International Congress of Medicine was closed on August 12. Awards were made in twelve classes, the jury consisting of M. Lucas-Championnière,

M. Jean-Louis Faure, M. Delagenière, Dr. R. Blondel, Dr. Nihues, Dr. Nestor Tirard, Dr. Lewis Jones, Dr. Ironside Bruce, and Professor W. Bayliss. Among the awards are the following:

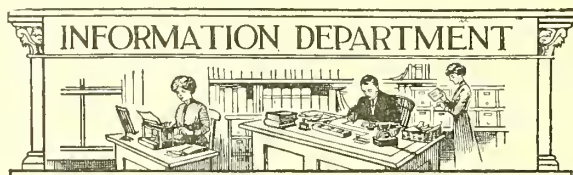
Baiss Bros. & Stevenson, Ltd., gold medal for cod-liver oil emulsion.

Burroughs Wellcome & Co., two grand prizes in Section 2 (pharmaceutical preparations, fine chemicals, and antiseptics) and Section 5 (serum-therapy, organo-therapy, and bacteriology).

Duncan, Flockhart & Co., gold medal for chloroform and ether and gold medal for organo-therapeutic preparations.

W. Martindale, gold medal in Section 2.

Messrs. Parke, Davis & Co., although exhibiting, were not competitors for the awards.



Postal Address:

C. & D. INFORMATION DEPARTMENT, 42 Cannon Street, London, E.C.

Telegraphic Address: "CHEMICUS CANNON LONDON" (two words).

Telephone Number: BANK 852 (two lines).

INFORMATION WANTED.

Would any reader who knows please inform us by postcard or telephone of the names and addresses of the agents or makers of the articles mentioned in the following inquiries:

- 167/34. "Alcotar": supply.
- 162/46. "Mentho-Capsol": supply.
- 167/24. Simpson's patent hair-dryer.
- 169/40. Wetton's anklets for sprains.
- 166/13. "Retento" hair-pins: supply.
- 166/14. Ward's eczema-lotion for cats.
- 172/3. Bacterole (acriiform Tye): supply.
- 169/401. "Tala" cases for sputum mugs.
- 168/39. "Majestic" polisher and cleaner.
- 172/1. Freeman's pasteurisers: suppliers.
- 169/39. James's influenza and catarrh cure.
- 171/28. "Diamorus": makers or suppliers.
- 170/501. Lord Ambhurst's cure for rheumatism.
- 170/51. Handreck's tooth-brush No. 1: suppliers.
- 170/50. Dr. Clery's anti-asthma powder: supply.
- 170/55. "Pepifar," powder for preserving meat.
- 168/12. "Ammonia Balls" (not sal prunella): makers.
- 170/502. "Standard Bengal" marking-ink: makers.
- 168/29. "Carnol" (used in pavement-making): suppliers.
- 168/30. "Aponin" (Jameson's local anaesthetic): makers.
- 169/46. "Turbene," a liquid preparation for allaying dust.
- 170/65. Dr. Kimball's "Repertory of Gonorrhœa" (publishers).
- 166/20. "Cargil" or "Cargyl" (for placing on wounds after dressing).
- 171/16 and 169/29. Baking-flour, "Samson" brand (Geyser & Co.): suppliers.

INFORMATION SUPPLIED.

During the past week we have answered inquiries as to where the following articles are obtainable wholesale. We shall be glad to repeat the information to others who send to this Department a stamped and addressed envelope for the purpose.

- | | |
|--|--|
| Aletris cordial, 160/7 | Folding cardboard boxes, 159/17 |
| Altona drops, supply, 152/35 | Geisha toilet-rolls, 163/51 |
| Antiformin, 160/40 | "Hereules" body belts, 160/4 |
| Auctioneers for chemists' goods, 159/19 | Jameson's Electric ointment, supply, 160/701 |
| Baker's Great American specific, 160/703 | Kephaldol tablets, 162/58 |
| Borax and boric acid, Italian shippers, 161/56 | Lactacine, 159/55 |
| Castorete, 160/41 | Murray's gout-specific, 163/52 |
| Celtex toilet-rolls, agents, 162/37 | Muscatol, 163/520 |
| Delabarre teething-syrup, 163/57 | "Record" salvarsan syringe, supply, 155/35 |
| Diabetic biscuits, 162/48 | Reynold's gout-specific, 163/30 |
| "Empire" corn-silk, makers, 147/28 | Salofarm pessaries, 157/54 |
| Ephederin Co., conules, 163/60 | Shirley's menthol ointment, 160/700 |

OBSERVATIONS AND REFLECTIONS.

By Xrayser II.

Discussion in Private

by a representative body is always of questionable propriety, and except when it relates to purely personal matters which have no public significance, is usually to be deprecated. One fails to see why it was resorted to by the Pharmaceutical Council in the case of Mr. Moreton Parry's motion with regard to local formularies. This is a question in which we are all interested, and concerning which many of us differ in opinion. We have not, it is true, the onus of deciding it, but we are naturally anxious to know all that may be said for and against these formularies, and one would have thought their expediency might have been discussed without unseemly passion. Possibly the discussion would in any case not have enlightened us very much, and it may have been the consciousness of this fact that led to the committee's decision, but "considerable debate" seems to argue considerable difference of opinion in the committee itself, and it is possible again that privacy was chosen for the purpose of minimising the appearance of difference. As a result of the debate the motion was improved, both in grammar and in sense, but it might have carried more weight with some of us if we had been told why it was adopted at all. Now that

Local Formularies

have been cursed by the Council of the Pharmaceutical Society, and having in recollection the terrible fate of the Jackdaw of Rheims, I naturally view with no small apprehension the effect of the official anathema on these publications. But why should the Council strain at the gnat and swallow the camel? If the custom of dispensing stock mixtures is "inimical to the efficacy of the medicine supplied to insured persons," it is most certainly "calculated to degrade the profession of pharmacy," for there is in my opinion just as much, perhaps more, degradation in defrauding the insured of their just rights in the shape of good medicine, as there would be in stealing their sick-pay were such a thing possible. If what the resolution as it now stands asserts is true, the Council should rather have added to it than cut it down by saying that since "the introduction of stock mixtures is inimical," etc., it is thus "degrading alike to prescriber and dispenser." But is the statement in the resolution true? Certainly not. There cannot be the smallest objection to the doctor prescribing *mist. tussis L.F.* if he feels inclined to do so, and

There is No Degradation

in the chemist dispensing it from a stock mixture any more than there would be in his dispensing *glyc. thymol. co. B.P.C.*, were it ever prescribed. Where the dishonour and degradation come in is when a doctor, in Kent or elsewhere, who is in the habit of prescribing liquor carbonis detergens to his private patients, substitutes for it a methylated abomination for his panel patients, in order to try to secure an extra farthing to his income through keeping down the drug-bill. If the doctors of Kent follow the advice of the Medical Committee and prescribe *liq. salolis B.P.C.* when they think of a popular dentifrice, or substitute *liq. cresolis sap. B.P.C.* for a well-proved antiseptic, the chemist must dispense them, and in ninety-nine cases out of a hundred he will do so from "stock mixtures." I do not impute anything wrong in all this, but the resolution says it is wrong, and if it is, the chemist is not to blame.

Dispensing Arrangements on Half-days

ought surely to be possible in every town of any size. What more simple than for each chemist to arrange to attend for a couple of hours in the evening in turn, and to have cards printed, say, for three months ahead, giving the dates and hours of attendance, such cards to be exhibited in each of

the shop-windows on the closing day! The case reported last week is surely unusual, and I would very much like to hear the chemist's version of what took place. I should be sorry to think of any of my brethren refusing to dispense a prescription marked "Special" instead of "Urgent." While my sympathies are with the chemist in his desire to make the most of his half-day there can be no doubt that occasions frequently occur, and even more on Sundays than half-days, when the temper of the public is severely tried. I well remember one such case that happened to myself when in a strange city. The doctor prescribed picric-acid solution for erysipelas, and I started out at 10.30 A.M. to get it. The first shop I came to was open, but the pharmacist had no picric acid; the next was closed, and I was compelled to take a four-mile journey by train, then another mile by bus, during which time I visited seven closed shops, not one with a side bell, before I got what I wanted. Then I had a five-mile journey back, so that I had spent three hours and not a few coppers before I could procure $\frac{1}{2}$ oz. of picric acid. Since that experience I have been more sympathetic with people who want medicines urgently on Sunday.

The Granting of Poison-licences

appears from the report of the Middlesex Public Health Committee to be a very haphazard sort of business, and it is difficult to see on what principle it is done. Is it done on any principle at all? Evidently there is room for favouritism and other personal motives, and even when there is no reason to suspect these no guarantee exists that the licences are granted in accordance with the expressed intention of the Act. That the expressed intention was the real one, or perhaps I should say was the real intention of the promoters of the Act, I do not affirm. It might quite reasonably be contended that this had as much reference to the benefit of the licensees as to the safety of the public, and the reckless way in which licences have in some places been granted lends a good deal of colour to the argument. In any case the present practice with regard to them is indefensible. Even the Insurance Act, in a case in which the public safety is not quite so manifestly at stake, confines its arrangements for the special provision of medicines within rural areas, and allows us a mile radius, but local authorities have a free hand in the granting of these licences, and have no "consistent and settled policy."

Mr. A. J. B. Wavell, F.R.G.S.,

in "A Modern Pilgrim in Mecca," gives an account of the effect of hashish upon himself and his Arabian servant, Ahmad. They were at the time virtually prisoners of the Turks in Sanaa, in South Arabia, and tried the experiment of hashish-smoking apparently out of sheer ennui. Obtaining a quantity of the drug which Mr. Wavell estimates at half an ounce, and describes as like dried clover-heads in appearance, they proceeded to smoke it in a water-pipe. For a considerable time no effect was felt, but then, having begun to laugh at some casually suggested joke, they found themselves unable to stop, and paroxysm followed paroxysm of laughter almost to the point of exhaustion, though the idea that started them was quite forgotten. The sense of time, too, was completely lost; hours seemed to elapse in what proved to have been only a few minutes, and the mere action of raising the hand to occupy the time it would take to count three or four hundred. Visions of an endless series of colonnades and of steps ascending indefinitely, flanked by dark-green bushes bearing flowers of vivid blue, succeeded, though a kind of subconscious sanity persisted all the time, as did also the intermittent paroxysms of laughter. A deep sleep followed, awaking from which after many hours they still found themselves in a state of partial intoxication, which did not wholly pass off during the entire day.



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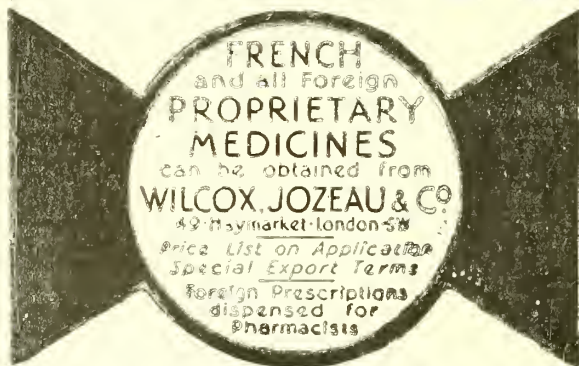
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Editorial Articles.

Scarcity of Chemists' Assistants.

III. The Remedy.

In the past two issues of THE CHEMIST AND DRUGGIST we have discussed this subject, showing the extent of the scarcity, and its causes. Facts and figures have been adduced which prove that, as far as Great Britain is concerned, the diminished supply of assistants is directly due to the policy of the Pharmaceutical Society, which, after due notice, in July 1900 abolished the Preliminary examination which for six decades had been the entrance to the pharmaceutical calling, and substituted for it other preliminary examinations which are the entrances to several professions, including dentistry and surgery. The change may have been well-intentioned, but it was going "one better" (in the academic sense) than the advocates for a better Preliminary examination had dreamt of. That it has signally failed we have proved by the figures which show how enormously the entrants into our calling have diminished in number. Now, owing to the increased demand for qualified men induced by the Poisons and Pharmacy Act, 1908, and the National Insurance Act, we have reached a point which is not the worst, and further

disaster can only be averted by the Pharmaceutical Society attacking the problem quickly.

The solution does not lie in the creation of an assistant's qualification, but in reconsidering the problem of preliminary education, and departing from the academic conditions enforced in 1900. We think the Society can do this honourably and without going back on the principle of a better Preliminary examination. Thirteen years' experience has proved that it is a distinct advantage to Pharmacy and the Society that we should have a Preliminary examination of our own. Chemists do not want to tell prospective apprentices that the only door to get into the business is the same as dentists and doctors have to go through. They want a door of their own. The experience of the Pharmaceutical Society of Ireland proves this: while registered apprentices have been dwindling in Great Britain, they have kept at the old level in Ireland, and have somewhat improved. We, therefore, urge the restoration of a Preliminary examination to be conducted by the Pharmaceutical Boards of Examiners, keeping to the subjects as at present and substantially on the same basis; but, and here is an important point, the Pharmaceutical Society should, in formulating the conditions of the Preliminary examination, recognise the difference between the educational systems in Scotland and in England and Wales. According to educational authorities, national education on the Southern side of the Border is a generation behind that of the North. This fact should be recognised in examination practice. We suggest, therefore, that the Preliminary examination of England and Wales should be conducted on the old lines, the College of Preceptors setting the questions and evaluating the answers; but that a Scottish body, such as the Educational Institute of Scotland, should set the questions and evaluate the answers of candidates in Scotland. On such a basis the Board of Examiners for England and Wales would be the final arbiters as regards the Southern examination, and the Board of Examiners for Scotland the arbiters in respect to the Scottish examination. This would not be a retrograde step, but simply a common-sense recognition of existing conditions. The principle of accepting certificates of success in the subjects in not more than two examinations should be transferred to the examination conducted by the Society. We might go further by suggesting that, as a very large proportion of chemists' apprentices now come from State-aided schools where Latin is not taught, it might be desirable to devise some means whereby registration as apprentice or student could be secured without Latin. The Society have a precedent for this in the Matriculation examination of the University of London. Also they have security of knowledge in the Minor examination, where all candidates are examined in pharmaceutical Latin. This is a detail worthy of consideration in view of the fact that knowledge of Latin for the Preliminary is a high-barred gate that prevents many otherwise desirable persons coming into the business.

We further suggest that the Society should periodically issue a syllabus detailing the extent and nature of the subjects upon which the candidates will be examined, similar to those issued by the College of Preceptors and other examining bodies. This, we feel, would not only be useful to the candidates, but would be of great service to the Boards of Examiners and, through them, the Council of the Society, because it would bring them into touch with general educational bodies throughout the

country, particularly the Government Education Departments, so that those who have the education of the youths of the country in their hands will have brought directly to their cognisance the fact that Pharmacy wants recruits. At present they only know it at second-hand, and we suffer in consequence. We do not think the Pharmaceutical Society would lose financially by the change, although we advocate no difference in the amount paid by the candidates. We should stick to the two-guinea fee, a guinea of it being for the first part of the Preliminary examination, half a guinea for the second part, and half a guinea for registration. These are the days of small examination-fees, particularly at the beginning of a career, and it would be entirely to the advantage of the trade if the Society kept the Preliminary examination fees low. In fact, the present fee of two guineas for registration of apprentices or students is ridiculously high, as well as impolitic.

We had thought of discussing also on this occasion the question of an Assistants' examination, but as we feel so strongly that that would be merely a temporary solution of the difficulty, we have preferred to confine our attention to the source of all the trouble—lack of registered apprentices. It is not for us, as advocates of this reform, to expound the reasons against, but we shall be very glad to give publicity to them in the hope that this whole subject will be brought within the range of practical politics and treated in a businesslike way by those only who can solve it—the Council of the Pharmaceutical Society of Great Britain. Upon it only lies the responsibility of the present scarcity of assistants.

Insurance Act Amendment.

By the time this issue reaches our readers the National Insurance Act (1911) Amendment Bill will have received the Royal assent and become an Act. It will be recollected that the Bill was introduced not for the purpose of making sweeping alterations in the National Insurance Act, but to amend it in certain directions so as to facilitate its working. It was felt that an Act which has only been in force for six months as regards its chief provisions could not be fundamentally interfered with until experience had shown that any of the anticipations were not justified. At the same time, the amendments of the law that have been made, so far as concerns panel chemists, are far reaching in effect. The most important sections of the amending Act, from the chemist's point of view, are Sections 9, 30, and 31. Section 9 deals with benefits of exempted persons. In the principal Act it is provided that the contributions paid in respect of persons holding certificates of exemption should be carried to an account and dealt with in such manner as may be prescribed by regulations made by the Insurance Commissioners. This power has not been utilised by the Commissioners, and Parliament has now laid it down that the regulations "shall provide for applying the contributions paid in respect of persons who hold certificates of exemption in providing medical benefit and sanatorium benefit for such persons." The arguments used in debate in favour of these benefits were that the employers naturally feel a moral obligation to provide medical benefit for their employees if they are ill, and that the State for its contribution could not obtain a better return than to provide medical and sanatorium benefits. From the report of the Insurance Commissioners it appears that up to March 31 there were

granted 91,751 certificates of exemption. These exempted persons are made up of pensioners (27,235), those having the income necessary to keep them outside the provisions of the Act (28,976), married women dependent upon their husbands (19,292), and apprentices or pupils in the professions. The importance of this definite instruction by Parliament is that 91,751 persons become entitled to medical benefit, and consequently will have their dispensing done by chemists on the panel. Then in regard to Sections 30 and 31 the smoother working of the Act is ensured. Committees of panel doctors and panel chemists may now be recognised by Insurance Committees, and they may jointly apply to be allotted from the drug fund, towards administrative purposes, a sum not exceeding one penny per insured person. It will be seen that in future there should be no difficulty in regard to payment of the cost of checking the charges of prescriptions and in paying the expenses of the members of Pharmaceutical Committees. The fund thus created would allow, moreover, of developments of the activity of these committees. The Pharmaceutical Committees are ready to hand, and as soon as the Insurance Commissioners issue regulations can be constituted and obtain statutory recognition. When these and the committees of panel doctors are formed, the first step should be to arrange for a joint request to each Insurance Committee for the grant towards administrative expenses sanctioned by Section 31. The work to be done by the committee is fairly well indicated by the experience of the last few months. The Bill passed its third reading in the House of Commons on August 7, and has been before the House of Lords this week. It is to receive the Royal assent on Friday. It would be ungenerous not to remind the trade of the debt it owes to Mr. Glyn-Jones in piloting the sections referred to through the House of Commons. Without a representative on the floor of the House it would have been impossible to have brought about the recognition of pharmacy so completely as has been done. Steps must be taken to retain the services of a chemists' representative in the House of Commons. There are several ways by which this can be brought about. We suggest that the Pharmaceutical Committees should form a federation and devise a scheme having for its object direct representation in the House of Commons. The importance of such representation has been shown over and over again during the last few years.

Overseas Trade in July.

THE Board of Trade Returns for July show that the second half of the year has begun extremely well, a further aggregate increase of practically ten millions sterling being shown. The imports rose by 3,487,253*l.*, or almost 6 per cent., to 61,786,752*l.*, the exports by 5,177,848*l.*, or 12.3 per cent., to 47,164,208*l.*, and the exports of imported goods are up by 1,217,674*l.* to 8,311,345*l.* Among the imports foodstuffs account for a third of the total increase, this applying to all the scheduled items, and in particular to grain and flour. The advance in raw materials was 935,677*l.*, the most noteworthy increase being 1,315,113*l.* more in Russian wood and timber. The declines in raw materials include one of 404,262*l.* in oil-seeds, nuts, oils, fats, and gums. In this section much larger receipts of linseed are noted, but imports of the soya bean were almost nil. Rape declined by half, and much less castor-seed was imported (only 72,252 cwt.). Petroleum also fell off by 3,750,500

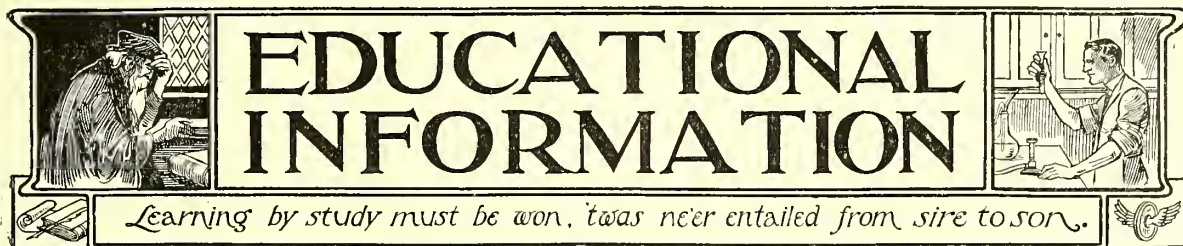
gals., but the values advanced by 23,600*l.* On the other hand, rubber rose by 1,250,000 lb., but the value declined by 397,500*l.* Manufactured articles altogether show an advance of 867,576*l.*, including 89,730*l.* more for chemicals and the like. Dye-stuffs (aniline and naphthalene) and tanning substances account for the larger portion of the increase. Both unenumerated drugs and chemicals were down by 18,226*l.* and 15,704*l.* respectively, and of quinine and quinine salts the imports were 244,037 oz., or 7,786*l.* less, our purchases being 50,946 oz. as compared with 294,983 oz. in July 1912.

Dealing with the month's exports, we find that, as usual, the bulk of the increase—4,211,775*l.* out of a total of 5,177,848*l.*—is assignable to manufactured articles. New ships, a most irregular item, show the biggest increase (732,965*l.*), and following that is 614,830*l.* more for iron and steel manufactures. Cotton fabrics are up by 615,064*l.*, and woollen fabrics by 264,630*l.*, the Far East showing a much larger demand. Chemicals, drugs, and allied articles show the substantial improvement of 177,578*l.* on a total of 1,612,607*l.*, the expansion applying to nine of the scheduled items, while six others register declines. Glycerin showed remarkable activity last month, with an increase of 17,479 cwt., or 59,566*l.*, and a similar increase of 26,281 cwt., or 59,179*l.*, took place in painters' colours and materials. The exports of drugs and medicinal preparations continue very satisfactory, the gain being 35,723*l.* on a total of 210,206*l.* This included 7,098*l.*, or 137,628 oz., more for British quinine, the shipments attaining 211,834 oz., valued at 10,719*l.* Soda compounds (particularly soda-ash and alkali) were 105,346 cwt. more, and there was also a gain of 8,979 cwt. in sulphuric acid, 590 cwt. in tartaric acid, and 4,280*l.* in potassium compounds. Among the declines we find a decrease of 437 tons in copper sulphate and one of 36,582 cwt. in bleaching-powder; muriate of ammonia also fell off by 7,089 cwt. So far this year the exports of chemicals and allied goods amount to over 13½ millions sterling, or practically 1.3 million more than the corresponding period of 1912. This progress seems to have been well distributed over the chemical-trades, and only in one or two instances has a decline been registered.

If further evidence were needed that the country is enjoying a period of great trade prosperity it may be found in a Blue-book issued by the Board of Trade, embodying their first report on the working of Unemployment Insurance. This shows that after meeting claims there is already an invested fund of 1,610,000*l.*, so that when the next period of depression comes along there will be an accumulated reserve fund of some millions sterling, laid up during the present period of prosperity.

Explosives Act Report.

The annual report of the Inspectors of Explosives has been issued this week, and contains a few points of interest to the drug-trade. For example, in regard to licences for motor spirit it is suggested that local authorities, in issuing licences, might discriminate between the chemist, grocer, or oilman, who desire to keep the spirit on tap, and the dealer who merely wishes to keep petroleum spirit in sealed two-gallon cans. The former method is the more dangerous of the two, and calls for more stringent regulations. The conditions attaching to the compression of acetylene have been modified, the terms of the previous order having been unnecessarily restrictive in regard to the importation of cylinders of the gas, even when attached to the motor cars of American or Continental visitors. Only one death has occurred during the year in the manufacture of explosives, as compared with an average of 6.1 for the decade. The number of injured is also less, although the tale of accidents shows a substantial increase.



The Practice of Pharmacy.

THE art of the apothecary is the oldest part of applied science. Its practitioners have in the course of centuries embraced chemists, pharmacists, and physicians, and even in modern times many celebrated chemists and physicians have had their early training in pharmacy, so that it is appropriate in dealing with the educational requirements of these and allied professions to begin with those of pharmacy. In the first place we deal with the conditions regulating the practice of pharmacy in the United Kingdom, and there is similarity between them; but so far as pharmacy is concerned

GREAT BRITAIN

has a law older than and distinct from that of Ireland. The Pharmaceutical Society of Great Britain is entrusted with the administration of the Pharmacy and Poisons Acts, 1852 to 1908, including the examination and registration of persons who desire to be registered as Chemists and Druggists or Pharmaceutical Chemists, who are the only persons that may carry on business as chemists and druggists in dispensing and retailing scheduled poisons, and who may undertake dispensing of medical prescriptions for insured persons according to the National Insurance Act. Companies who carry on business as Chemists and Druggists must not do so without registered chemists as superintendents and managers.

The Pharmaceutical Society's first idea (1841) for qualifying as a Pharmaceutical Chemist embraced three examinations, viz.:

- (1) The Preliminary (for registration as an Apprentice).
- (2) The Minor (for registration as an Assistant).
- (3) The Major (for registration as a Pharmaceutical Chemist).

These were taken one after the other, and were ratified by the Pharmacy Act, 1852. When the Pharmacy Act, 1868, required the registration of all persons carrying on the business of chemists and druggists, it stipulated that those who thereafter should prove their fitness by passing an

"Examination . . . such as is provided under the Pharmacy Act for the purposes of a qualification to be registered as an Assistant under that Act, or as the same may be varied from time to time by any Bye-law to be made in accordance with the Pharmacy Act as amended by this Act."

The principle is still carried out, and

THE PRELIMINARY EXAMINATION

has to be passed by all persons, and themselves registered as "Apprentices or Students," before they can be admitted to the Minor or Qualifying examination. Here is the official statement in regard to the matter:

Persons desirous of obtaining registration as "Apprentices or Students," and of thus becoming eligible to enter for the Minor examination, must deliver to the Registrar, 17 Bloomsbury Square, London, W.C., either personally or by post, a certificate of having passed any one of the examinations specified in the approved list. No certificate may be accepted by the Registrar unless the following are included in the subjects for which the certificate has been granted, and such subjects must have been passed at not more than two examinations of the same Examining Authority (see note below for alterations this month as to these conditions):

- English.
- Latin.

A modern foreign language. [The Council accepts a pass

in Welsh under the Central Welsh Board, or other approved examining authority, as complying with this condition.]

Mathematics (including arithmetic, algebra, and geometry).

At the meeting of the Pharmaceutical Society on August 6 resolutions were presented from the Boards of Examiners for England and Wales and for Scotland, stating that, in their opinion, the Council will be justified in accepting three certificates (but not more than three, and not necessarily of one examining body) in connection with the standard of general preliminary knowledge. The Council adopted the recommendation; but a second proposal that the regulations for the registration of "apprentices and students" should be so amended as to include English, mathematics (arithmetic, algebra, and geometry), and two optional subjects, one of which must be a language, was deferred until October.

The fee for registration as an "Apprentice or Student" is two guineas, and has to be paid to the Registrar on application for registration.

The Pharmaceutical Society ceased on July 1900 to conduct the Preliminary examination which it had carried on for nearly sixty years, and instead it accepts for registration certificates of any of the following examinations, if such certificates conform to the condition noted above:

MORE COMMONLY TAKEN EXAMINATIONS.

College of Preceptors.—First or Second Class Certificate examination.

Educational Institute of Scotland.—Medical Preliminary examination.

Central Welsh Board.—Honours, Senior or Junior Certificate examination.

UNIVERSITY EXAMINATIONS.

Birmingham.—Matriculation examination.

Bristol.—Matriculation examination.

Cambridge.—Junior or Senior Local examinations; Higher Local examinations; previous examination.

Dublin.—Public Entrance examinations (for "High Places").

Durham.—Junior or Senior Local examinations; Certificate of Proficiency examination.

Edinburgh, Aberdeen, Glasgow, and St. Andrews.—Preliminary examination in arts, or medicine, or science; Junior and Senior Local examinations.

London.—Matriculation examination; Higher School-leaving Certificate; Junior School examination; Senior School examination.

Manchester, Leeds, Liverpool, and Sheffield.—Joint Matriculation examination; Senior School examination; Junior School examination.

Oxford.—Junior or Senior Local examinations; Higher Local examinations; Responsions.

Queen's University of Belfast.—Matriculation examination.

Royal University of Ireland.—Matriculation examination.

Wales.—Matriculation examination.

SCHOOL CERTIFICATES.

Scotch Education Department.—The Intermediate Certificate or Passes in the Higher or Lower Grade of the Leaving Certificate examination.

Intermediate Education Board for Ireland.—Senior or Middle Grade Certificate examination.

Oxford and Cambridge Schools Examination Board.—Higher or Lower Certificate examination.

The best thing for those who know little about these examinations is to get a copy of Dodds's "Complete Guide to Preliminary Examinations," published by THE CHEMIST AND DRUGGIST, 42 Cannon Street, London, E.C. (2s. 6d., post free 2s. 9d.). It tells them all about the principal examinations, the subjects and books required, when they are held, and fees; gives hints on how to prepare, as well as questions set at the examinations, and answers. The *College of Preceptors'* examinations are held in June and December, and its Professional Preliminary examination

in March and September. For particulars and syllabus apply to the Secretary, College of Preceptors, Bloomsbury Square, London, W.C. The *Educational Institute of Scotland's* examinations are held four times a year, and the Secretary's address is 34 North Bridge, Edinburgh.

The Pharmaceutical Society has not at present the power to stipulate when the Preliminary examination should be passed, but it is considered advisable to pass it, either in whole or part, before entering on apprenticeship in a chemist's shop. Most of the examinations recognised are designed for school examining purposes, so that boys or girls intending to enter pharmacy should get through as many of the subjects as possible while they are at school. The wisdom of this statement need not be laboured.

AS TO APPRENTICESHIP.

A second condition of entering for the Qualifying examination is that the candidate has been "practically engaged in the translation and dispensing of prescriptions" for three years. The Society has not the power to compel apprenticeship, but in practice the engagement works out as a three years' apprenticeship. Sometimes we are asked whether it is good or not for a boy to be apprenticed to a "private" chemist or to a company carrying on a chemist's business, and we append some remarks on the subject:

Apprenticeship to the ordinary or "private" chemist has distinctly the advantage, particularly in a country business, where most of the galenicals are home-made and some veterinary work is done in addition to making and putting up nostrums, toilet preparations, etc. In the case of the large drug-companies, all the galenicals are made, and all the put-up goods packed in large warehouses by a staff who do nothing else; not even the simplest preparations are home-made, so that the duties of the apprentice are largely confined to dusting, unpacking, and displaying stock, and, after a time, coming to the front counter during busy times. The stores, however, appeal to a boy whose parents cannot afford to pay a premium, or even to let him work for three or four years for nothing, as they pay a small wage (5s. to 10s. a week) from the commencement. It is better, if possible, to get that all-round experience which only the ordinary chemist's shop can give.

When the apprentice is out of his time, if, for reasons of age or money, he is not prepared to study for the Minor at once, he will want a situation as junior assistant. He will find the private chemist will offer him about 40l. a year indoors, or 30s. a week outdoors, and the stores will give him also the same amount, with perhaps some advantages in the direction of a commission on certain sales, slightly shorter hours, and no Sunday duty. If, however, the chemist he goes to does a fair amount of dispensing, this experience will be of value to him in his coming examination; and so again the balance is in favour of the shop as opposed to the store, when his duties would consist almost entirely of stock-keeping and serving customers.

To carry the matter further, and looking ahead a little beyond immediate requirements, when the young man gets the Minor safely over, the advantages of the stores become more apparent, as the majority of berths offered by the chemist are indoors (averaging about 80l.), with rather long hours, some Sunday duty, and, in some instances at least, the employer does not treat his assistant with that consideration that might reasonably be looked for. If he can produce a good reference from his former employer he will have no difficulty in obtaining 2l. 10s. or even more weekly from the stores, and, in addition, earning commission which will amount to an extra 5s. to 10s. weekly, according to the class of shop and, of course, his ability as a salesman.

After a year or two as assistant he may be put to relieve managers on the holidays or during illness, and thus given charge of a small branch at 3l. a week and commission, and, if he is fortunate enough to obtain promotion to a large shop, earn up to 200l. to 250l. a year. He will now have in his charge a number of assistants doing a large turnover, and a good deal of his time will be occupied with filling up various forms relating to returns, stock, etc. By this time he will have become an expert salesman, but, as far as the buying side of the business is concerned, his stock of knowledge will not have been increased to any appreciable extent. He will have received very fair and considerate treatment from his employers, for whom he will have worked wholeheartedly, and sometimes by push and drudgery take away a customer from the "private" chemist.

When, however, he comes to go into business for himself (particularly if his stay with the stores has been a lengthy one) he will find himself rather at sea. When a business has to be bought or the lease of a fresh one arranged, shop-

fittings to be ordered, and stock bought, the store experience, where each of these branches is relegated to a separate department at headquarters, does not help, and some fresh experience has to be bought and paid for. Men who have managed businesses with a large turnover are sometimes inclined to think that it is largely due to their own personal efforts, and that they have only to go into business for themselves to do likewise, forgetting that careful organisation, unlimited capital, and constant advertising will always be the store's advantages.

To sum up, the most successful chemists are those who have been apprenticed in all-round businesses, preferably country ones, and then had a year or two in a good-class business; next a couple of years in a modern store, and finally, if circumstances allow, go into business for themselves.—(127/68.)

As regards training for the Qualifying examination, the student should have laid the foundation of this when he took his Preliminary examination and during apprenticeship. The technical side of pharmacy should have been studied at local institutions, or, failing these, privately. *THE CHEMIST AND DRUGGIST* Corner for Students affords splendid exercises in qualitative chemical analysis, eminently suitable for Minor candidates. On this subject Mr. J. G. Wallbridge, M.P.S., F.S.M.C., contributes the following account of how he won

THE STUDENTS' CORNER PRIZE.

I was quite self-taught in chemistry until I had taken both second and first prizes in "The Corner." The making out of the complete report seemed to be my stumbling-block, as I had no precedent to work by, but by perseverance this was overcome.

Systematic working is the only "royal road" to success in chemistry, as in many other branches of study. After having mastered the general principles of chemistry as given in the usual text-books, take the different elements seriatim—potassium, sodium, ammonium (so-called element for convenience), calcium, etc.—making all the salts if possible, and then analysing them by the tests given. By this means one finds out a deal by observation, and the mental impression is practically permanent. Get into the habit of making notes of all you do—this is invaluable, and inculcates habits of precision.

After working out the examples on the basilius side, I followed the same course with the acidulous, but before the latter stage I had already written up to the *C. & D.* for specimens of the powder sent to students. My first efforts were by no means gratifying to myself, so much so that I sent up no report. When I tried again the sample was not a powder, but a little piece of metal which looked very much like brass. I struggled with this, and, with the assistance of books of reference, I sent in my report that it was aluminium bronze. For this I got sixty marks, with some helpful criticism. I kept at this analytical work as much as my time would permit, for pharmacy hours in those days were 8 A.M. to 9 and 10 P.M., and no weekly half-holiday. The value of the practice is beyond written description, even though one never obtained a prize.

I tried many a time before I got anywhere near the top of the list of competitors, and even though my results seemed fairly accurate. I concluded that there must be a special way of making out a report that I was not acquainted with, and asked the question through the *C. & D.*, but got no more information than to work systematically, writing down all the results, perhaps distinguishing the more important contents from the lesser by smaller writing or by special picked-out paragraphs, but specially to note that not only the ingredients detected were to be proved, but also the absence of everything else.

A point I would lay emphasis on is the preliminary examination of the specimen, by physical as well as chemical means, not omitting to use a strong lens clearly to view its appearance. When starting on the chemical tests practise economy; this, besides being necessary, is exceedingly useful as a training.

Presuming that progress has been made, that the whole range of common elements has been covered and the reactions of the acidulous radicals grasped, and you have had a "try" with a *C. & D.* specimen and think you have got a fairly accurate result, you now want to make out your report. Proceed as follows:

RESULT OF ANALYSIS.

Summary.—Salt consists of iron (ferrous), calcium, phosphate, and sulphate, presumed to be a mixture of ferrous sulphate and calcium phosphate. Preliminary examination under lens revealed tiny green crystals mixed with a white powder. Follow by enumerating the confirmatory tests for iron (in the ferrous state), calcium and the acidulous radicals (phosphate and sulphate), then follow up by a detailed description of the work done, first the

complete preliminary tests and results of each; even if no result to any special test, say so—no apparent result.

After preliminary tests, follow up with the result of taking through the complete group tests; in this be very watchful that your reagents are pure, and see that you do not yourself introduce any substance that you may afterwards trace and write down as part of the composition.

We give this experience as exemplifying the self-help which is one of the most potent influences for progress in all callings, especially in the retail drug-trade. Learning a business commences with the first day of entering it, and the chief difference between pharmacy and other shop-occupations is that the young chemist has to do something more than what falls to his lot in the shop; he should spend some spare hours every week in learning something about the sciences on which his calling is built. Mr. Wallbridge exemplifies what many chemists' apprentices are doing to-day. Others devote themselves to botany, or other subjects of the Minor examination, and most of the men who succeed in the business come from those who are always learning something.

The Minor Examination.

The examining body for pharmaceutical qualification is the Pharmaceutical Society of Great Britain, 17 Bloomsbury Square, London, W.C. There are two examinations, one for chemists and druggists (allowing the use of the title "pharmacist") and the other for pharmaceutical chemists. Full particulars of the examinations are contained in a pamphlet entitled "Particulars of Examinations, Scholarships, and Prizes," which is obtainable free from the Registrar of the above Society, and it is as well for the student to obtain this early in his career so that he may know exactly with what regulations he has to comply. The systematic course recommended by the Council of the Pharmaceutical Society covers a period of not less than six months, and includes at least sixty lectures in chemistry, eighteen hours' work in each week in practical chemistry, forty-five lectures and demonstrations in botany, and twenty-five lectures and demonstrations in materia medica. The candidate's experience of the Minor examination given below illustrates well how to gain instruction in the subjects of the examination, and it is all the more interesting because it shows the mode of preparation for it in a provincial town. The Minor examination extends over two days, but unless the candidate is successful in practical pharmacy and chemistry, forming the subjects of the first day's work, he is not called upon to attend the second part of the examination, which is an oral one in all subjects. The examination is conducted in London and Edinburgh by Boards of Examiners meeting in January, April, and July, and the end of September or the beginning of October. Application for admission to the examination must be made before the 15th day of March, June, September, or December. The candidate's first notice must be accompanied by a fee of 10*s.* 10*s.*, a certified declaration to the effect that he has been practically engaged in the translation and dispensing of prescriptions for three years, and a certificate of birth showing that he has attained the full age of twenty-one years. The printed form on which the declaration has to be made can only be obtained from the Registrar, and at the time of giving notice the candidate states whether he wishes to be examined in Edinburgh or London. Candidates who fail can enter for the next or any subsequent examination on payment of a fee of 3*s.* 3*s.* The subjects contained in the Minor syllabus are briefly as follows:

BOTANY.—(a) *Classification.*—The main divisions of the vegetable kingdom and their most important characteristics, including sub-classes and natural orders of the Angiosperms, description of flowering plants in technical language, and recognition of about fifty named plants. (b) *Morphology, including Anatomy.*—The external form of plants, distinguishing features and common modifications of them, branching and branch systems, phyllotaxis, buds and their arrangement, a general acquaintance with the elements of plant anatomy, and recognition by means of the microscope. (c) *Elementary facts* in connection with the physiology of plants, and the nature of certain plant-constituents; the manner in which plants grow and respond to external stimuli; sexual and asexual reproduction.

CHEMISTRY AND PHYSICS.—Elementary knowledge of (a) physical laws; (b) the chief characteristics of chemical action; elements and compounds; chemical combination; atomic and molecular weights; chemical formulæ and nomenclature; valency; the distinction between metals and non-metals; (c) the general characters of the non-metals, and preparation and typical reactions of non-metallic elements and compounds, with impurities in such of them as are included in the British Pharmacopœia; (d) the metals, and methods of forming oxides and salts; preparation, properties, adulterations, and contaminations of salts used pharmaceutically; (e) carbon compounds, especially those used medicinally; methods of estimating carbon, hydrogen, oxygen, and nitrogen in organic compounds; molecular formulæ. [Simple problems relating to the weight and volume, under different conditions of temperature and pressure, of elements and compounds concerned in chemical reactions.] *Practical Examination.*—Determination of specific gravities; use of the thermometer and barometer; recognition by tests of the more important non-metallic elements and compounds, metals, and salts; analysis of a mixture containing not more than two metals and two acid radicles; identification of named organic compounds; volumetric determinations described in the British Pharmacopœia; construction and use of the balance; imperial and metric systems of weights and measures. Assay of cinchona, liquid extracts of belladonna and ipecacuanha; extract, liquid extract, and tincture of nuxvomica; opium and its extract, liquid extract, and tincture; and resin in tincture of jalap. Preparation of inorganic and organic B.P. compounds.

MATERIA MEDICA.—Recognition of crude drugs, their varieties, sources, natural orders, modes of collection and preparation for the market, morphological nature, chief active constituents, and practical knowledge of any pharmacopœial tests or processes of assay applied to crude drugs or their official products. A list is given.

PHARMACY.—(a) Operations requiring the use of heat. (b) Disintegration of solid substances; solution, its nature, solvent-power of various menstrua, influences of specified conditions; filtration, expression, principles involved in the dispensing of medicines; processes by which specified official preparations are made; and proportion of active ingredient or crude material in official preparations of specified active medicines. (c) Knowledge of the Schedule to the Poisons and Pharmacy Act, 1908, and conditions upon which poisons may be sold, and the proper entry required on the sale of a Part I. poison, dispensing of poisons, and sale of arsenic.

PRACTICAL PHARMACY AND DISPENSING.—Making of British Pharmacopœia preparations, and compounding and dispensing medicines.

PRESCRIPTIONS.—Reading autograph prescriptions in English or Latin; posology; calculation of percentages and rendering into good Latin ordinary prescriptions written in English.

Minor Experience.

I left a suburban Council-school at the age of fourteen, and became apprenticed to a local chemist on a four-year agreement. My master allowed me to attend evening classes for Preliminary work. After attending for two years, I entered for the College of Preceptors' Second Class Certificate, and obtained about double the minimum of marks in the six subjects—English, Latin, French, arithmetic, algebra, and Euclid.

This accomplished, I began to inquire into facilities for study for the Minor, and found there were excellent classes provided by the local Education Committee, the Minor course extending over three years. The first year was a preparatory course (fee 7*s.* 6*d.*), a grounding being given in botany, chemistry, and physics. The two succeeding years embraced the Minor syllabus (fee 3*s.* a year). Attendance was necessary on three evenings a week, there being one teacher for materia medica, pharmacy, and dispensing, another for chemistry, and a third for botany, each teacher being a specialist in his own subject.

At the end of the three years I had been through the syllabus, but nevertheless was not sufficiently "well up" to undertake the examination. The classes were held in the winter only, and the unavoidable slacking during the summer necessitated revision next session. I attended one "summer course" in botany. The text-books used were Newth's "Inorganic Chemistry," Perkin and Kipping's "Organic Chemistry," Will's "Volumetric Analysis," F. Mollwo Perkin's "Qualitative Analysis," Lawson's "Botany" or Scott's "Flowering Plants," and Watt's "School Flora." I continued to attend the classes for two sessions further, revising everything. It is surprising what a large number of things slip after going through them only once. In the meantime, my four years of apprenticeship having expired, I obtained a berth as improver, and continued to attend business until two days before going up to London. I was requested to attend at Bloomsbury Square

on July 3, 1913, at 9.40 a.m., and on reaching Galen Place I found a group of would-be pharmacists discussing the work of the previous day with men who had been through it. The conversation was freely punctuated with jokes and facetious remarks. The door opened, and about twenty of us found our way to a large room, where we addressed envelopes to ourselves. Several of us now looked anxious, and jokes were becoming fewer. After a lapse of about five minutes a number of names were called out for their owners to go to dispensing. The rest of us were sent upstairs to the chemical laboratory, at the top of the building.

Practical Chemistry.—On my portion of the counter were burette, flasks, watch-glasses, etc., for volumetric work, and bunsen, tripod, test-tubes, etc., for qualitative analysis. The paper handed to me was:

Estimate the percentage of Na_2CO_3 in the commercial sodium carbonate provided. Test for likely impurities.

Identify the carbon compound in solution given.

The volumetric exercise needs no explanation— $\text{N}/10 \text{ H}_2\text{SO}_4$ was provided. I found chloride, sulphate, arsenic, iron (ferric) as impurities in the sodium carbonate. The carbon compound was morphine hydrochloride. I completed the work by 12.45 p.m., leaving the bench in good order. After handing the report to an examiner, I was free to depart.

I entered for *Dispensing* at 1.50, and was sent to a small room with five other candidates. My paper was as follows:

Ol. amygd.	5j.
P. gum. acacie	5ss.
Syr. aurant.	5iv.
Aquam ad.	5viij.
Ft. mist.	

Sign: 3ss. ter die sum.

Pulv. rhei	gr. xlvij.
Miant pil. xxiv. Argente.	

Sign: One pill at night when necessary.

Iodoform.	gr. ij.
Chrysae-robin.	gr. iij.
P. opii	gr. j.
Ol. theobr.	q.s.

Fiat eupp. Mitte vj.

Lin. camph.	
Lin. hydrarg.	aa. 5j.

Ft. lin.

Sign: To be well rubbed in at night.

(Lin. camph. and lin. hydrarg. to make.)

These presented little difficulty; the silvering was admired, and I was free to go, having finished at 4.30 p.m.

The next day I called at "The Square" for result of first day's work, and received a notice to attend for oral work on the following Wednesday at 9.55 a.m. On the fateful day I entered the large room hitherto visited, and took my seat in the double row before the chairman's desk.

I was soon called upon to go to *Prescription-reading*. This was held in the same room behind the waiting candidates. Botany and materia medica were also taken here; chemistry and pharmacy were taken in small rooms adjoining the large one. The examiner asked me to write out a prescription in full Latin, containing two fractions of a grain. After this I was asked to criticise several others. A calculation was then given: "How much mercuric chloride for 4 oz. of solution in glycerin so that 3j. diluted to 1 pint with water would produce 1 in 5,000 solution?" A few doses were next asked, all of which I answered correctly. The examiner then asked me if I thought I had done well. I said I thought so; had I? I was told I ought to know, and was sent to the double row at the front. After an interval of about fifteen minutes, spent in gazing at the ceiling, I was sent to

Botany.—Here I was asked to give common names of a number of plants in syllabus, Natural Orders of others, number of stamens in several N.O.s, insertion, difference between *Ranunculacea* and *Rosacea*, characters of *Crucifera* and *Umbellifera*. Was shown section of palm-stem—dicotyledon or monocotyledon? Section of oak-stem, likewise. What is the soft outer portion? Why is cork used in stoppering bottles? What is a lenticel? How do plants absorb nitrogen? What are the nodules on roots of some plants caused by? What is cambium? What does it give rise to? What is protoxylem? Where does it occur? What is corresponding tissue in phloem? Occurrence?

I was then given a number of slides to identify. They were: Transverse section of a leaf (which is upper side and lower, and why?); transverse section of stem of a eucurbitaceous plant; transverse section of ovary (*Liliacea*); transverse sections of dicotyledonous and monocotyledonous stems; and transverse section of an anther.

The examiner then informed me I had done exceedingly well.

During my next wait I saw two candidates leave the room with downcast faces, after a short interview with the chairman. The exit, by the way, was plainly indicated by two

cards, one on each side of the door, bearing the reassuring words "Way out."

The next subject was

Chemistry.—Here I had to write out the formulæ for all the organic compounds in the syllabus, and then to read out the names from my own formulæ; to write out steps for production of phenol from benzene. Questions were asked concerning methods of carrying out the reactions. I was given a calculation which entailed conversion of degrees Fahrenheit to degrees Centigrade, and a knowledge of Boyle's and Charles's Laws. How is nitrogen being obtained from the air commercially (cyanamide process)? This was not a vital question. After several other questions of no great difficulty, the examiner asked me where I had learnt chemistry, and informed me I knew it very well.

Pharmacy came next. Questions on the schedule were given: Estimation of cinchona-bark, strengths of morphine and ipecacuanha lozenge, etc. Percentage of strychnine in 5-gram tablets equal to 3ss. syrup. One or two more questions, and I was told I evidently took an interest in my work. Full marks once more.

Materia Medica was the last subject. I had some recognition to do—insect-flowers, aconite-root, podophyllum-rhizome, senega-root, pitch, lobelia-herb, stramonium-leaves, hamamelis-leaves. What kind of aconite-root is official? Test for aconitine.

I now took my place in the front row once more, and was soon called up to the chairman, who congratulated me, said he hoped to see me up for the Major, and informed me I had come within easily measurable distance of the maximum of marks.

The two examinations—Preliminary and Minor—were successfully negotiated at a cost below 50*l.*—*Aspiro*, Leeds (149/40).

The Major Examination

is a written one, extending over three days, and includes chemistry and physics, materia medica, and botany of a more advanced type than the Minor, as well as practical work in chemistry, botany, and materia medica. Candidates who pass the examination are awarded a diploma and have the right to use the title "pharmaceutical chemist." Other than carrying with it exemption from jury service, the examination is practically an honorary one. Still, certain positions can only be held by Major men. The chief subjects on which a more advanced knowledge than for the Minor is expected are: Heat and light, electricity and magnetism, taxonomy, microscopical detection of adulterants, gravimetric analysis, gas analysis, alkaloidal assays, and chemistry of the carbon compounds.

SCHOOLS OF PHARMACY.

Pharmaceutical education centres around a thorough knowledge of dispensing; accordingly, while the training in elementary chemistry, physics, and botany, available nowadays in some form or other in nearly every town, forms a good groundwork, practically every candidate for the Qualifying examination of the Pharmaceutical Society finds it essential to take classes at some institution specialising in pharmaceutical subjects. Classes in elementary chemistry, physics, and botany are available at practically all the institutions mentioned in the Science Section. The facilities at various schools are summarised below.

LONDON.

The School of Pharmacy,

17 Bloomsbury Square, W.C.

Staff: *Botany*—Lecturer: Mr. C. H. Warner, B.Sc., F.I.C. *Chemistry and Physics*—Professor A. W. Crossley, D.Sc., Ph.D., F.R.S., Foreign Sec. C.S. Assistant Lecturer: Mr. C. H. Hampshire, B.Sc., A.I.C. Demonstrators: Mr. W. A. Storey, A.I.C., and Mr. S. H. Stroud, A.I.C. *Pharmacutics*—Professor Henry G. Greenish, F.I.C., F.L.S. (Dean). Demonstrator: Mr. R. A. Sharp.

Courses for the Minor and Major examinations begin on October 1. The Elementary (Minor) course continues until the end of June 1914; fee, 32*l.* 11*s.*, or 30*l.* to student-associates. There is also an additional term (fee, 6*l.* 6*s.*) for students who have completed the elementary course. The advanced (Major) course ends in March of next year; fee 13*l.* 18*s.*, or 12*l.* to student-associates or members of the Society. Summer term for students who have completed the advanced course, 4*l.* 4*s.* Students who can satisfy the Dean that they received previous adequate training can make arrangements for special shorter courses or for separate classes; fees, 22*l.* for six months and 11*l.* for three months.

London College of Chemistry,
361 Clapham Road, S.W.

Principals: Mr. Henry Wootton, B.Sc., and Mr. A. Kirkland, Ph.C.

Revision course for the October Minor examination begins on August 13; fee, 5*l.* 5*s.* On September 10 a complete Minor course begins, and extends to Christmas; fee, 10*l.* 10*s.* The Spring and Summer terms, of three months' duration, commence early in January and April respectively; fee, 9*l.* 19*s.* 6*d.* A six-month course for the Major examination in April begins on October 15, fee 13*l.* 2*s.* 6*d.*; or three-month terms, January to April, or April to July, 6*l.* 16*s.* 6*d.* Evening classes (fees, 1*l.* 1*s.* to 1*l.* 17*s.* 6*d.*) are also held. Courses for the Apothecaries' Assistants' examination commence on August 13, and in October, January, and April; fee for full course (six months) 10*l.* 10*s.*, and for three-month term 5*l.* 15*s.* 6*d.* The South London School of Pharmacy is incorporated with this College.

South of England College of Pharmacy,

186 Clapham Road, S.W.

Principal: Mr. H. Lucas, Ph.C., F.C.S. Staff: Messrs. H. E. Archer, Ph.C., and R. N. Aston, Ph.C.

Minor courses, extending rather over three months, commence on September 29 and on January 1 and April 1; fee 9*l.* 9*s.*, or two terms for 17*l.* 6*s.* 6*d.* Tutorial class for the October examination starts on August 13; fee, 5*l.* 15*s.* 6*d.* Evening classes for Minor and Major students, held on Mondays, Wednesdays, and Thursdays, from 6.30 to 9 P.M., begin on October 1 and continue until July; fees: Minor, 8*l.* 18*s.* 6*d.* per session, or 3*l.* 3*s.* per session and 1*l.* 1*s.* per term for single evening each week; Major, 8*l.* 8*s.* per course, or 3*l.* 3*s.* for three months. Six-month and three-month courses for the Apothecaries' Assistants' examination cost 10*l.* 10*s.* and 5*l.* 15*s.* 6*d.* respectively. A system of correspondence tuition has also been inaugurated; fees, from 1*l.* 1*s.*

Westminster College of Chemistry, Pharmacy, and Botany,
402 Clapham Road, S.W.

Principal: Mr. G. S. V. Wills, Ph.C.

Full courses commence in September, January, and April. There is also a short revision class from August to October. The fees are: Minor, single term 10*l.* 10*s.*, two terms 17*l.* 17*s.*, session 21*l.*, revision class 5*l.* 5*s.*; Major, one term 6*l.* 6*s.*, two terms 10*l.* 10*s.* Afternoon and evening classes are held every Wednesday and Thursday from 2 to 9 P.M. Wills's Universal Postal System consists of a complete course of 100 lessons for home students; fee, 1*l.* 1*s.* Instruction for the Preliminary is also available.

Miss E. Rance, M.P.S., assists in training lady students for the Apothecaries' Assistants' examination; fees, three months 5*l.* 5*s.*, six months 8*l.* 8*s.*

City of London College,

White Street and Ropemaker Street, Moorfields, E.C.

Minor examination courses are held on Tuesday and Friday or Thursday evenings. The sessional fee is 30*s.* (members 20*s.*). Full particulars from the Secretary, Mr. David Savage.

South-Western Polytechnic Institute,
Manresa Road, Chelsea, S.W.

Evening classes for pharmacy students commence on September 22. Mr. H. B. Stevens, F.I.C., Ph.C., is the lecturer on materia medica and pharmacy. The sessional fee for the complete Minor or Major course is 25*s.*, or for one evening per week 10*s.*

Battersea Polytechnic,
Battersea Park Road, S.W.

Principal: Dr. S. G. Rawson, F.I.C.

Courses for the Minor commence on September 29, Mr. R. E. Griffiths, B.Sc., A.I.C., Ph.C., lecturing on pharmacy and materia medica. The fees for the day course are 4*l.* 14*s.* 6*d.* per term (thirteen weeks), or 13*l.* 15*s.* per session (September to July); afternoon classes in pharmacy and materia medica (Tuesdays and Thursdays) cost 1*l.* per session. Evening classes cover the Minor subjects in three years; fees, 10*s.* to 1*l.* per subject each year. The evening course for the Major extends over two sessions, with similar fees. There are also classes for the Apothecaries' Assistants' examination.

Wandsworth Technical Institute.

Evening classes in pharmacy and dispensing are available.

West Ham Municipal Technical Institute.

Principal: Mr. J. R. Airey, M.A., B.Sc.

The course in pharmaceutical subjects costs 35*s.*

Elt's College,

North Finchley, N.

Principal: Mr. E. E. Elt, B.Sc.

Tuition is provided for the Minor, Major, Apothecaries' Hall, and Preliminary examinations. Postal tuition is a feature. Day and evening classes at the College are also provided, and these may be combined with the correspondence classes. Private tuition is available. Details of methods and particulars as to fees are given in the College's "Little Red Book."

Miss Margaret E. Buchanan, Ph.C.

Gordon Hall, Gordon Square, W.C.

Miss Buchanan trains ladies in pharmacy. Apply by letter for particulars of courses and individual coaching.

THE PROVINCES.

Bath and West of England College of Chemistry and Pharmacy,

6 Cleveland Place East, Bath.

Principal: Mr. David J. Williams, Ph.C., F.C.S.

A course for the Minor, including foundation course, starts on September 8; fee, 9*l.* 9*s.* The fee for the January or April term is 8*l.* 8*s.* Rapid revision course (with extra evening practical work) for the October examination starts on the same date; fee, 5*l.* 5*s.* Evening classes are held; fees, 1*l.* 1*s.* to 2*l.* 10*s.* 6*d.* Major courses, three months 7*l.* 7*s.*, and six months 13*l.* 13*s.* Apothecaries' Assistants' course, six months 9*l.* 9*s.*, three months 5*l.* 5*s.* Preparatory postal tuition for Minor, Major, Scholarships, and Preliminary examinations; fees, from 1*l.* 1*s.* to 5*l.* 5*s.* There are special classes for ladies only. A new illustrated prospectus is now ready.

Birmingham and Midland College of Chemistry, Pharmacy, and Botany,

45 Newhall Street, Birmingham.

Principal: Mr. G. L. Scott, Ph.C. Courses for the Minor start on October 1 and early in January, April, and July; fees, three months 8*l.* 8*s.*, six months 15*l.* 15*s.* A short course for the October Minor begins on August 18. Afternoon and evening classes are also held. Instruction is also provided for the Major and for the Apothecaries' Hall examinations.

Birmingham Municipal Technical School,

Suffolk Street.

Secretary: Mr. Geo. Mellor. Pharmacy class on Wednesdays from 2.30 to 5.30 P.M. The sessional fee is 5*s.* for the first year, 7*s.* 6*d.* for the second, and 10*s.* for the third. The C. J. Woodward Memorial Prize of 3*l.* 10*s.* is awarded to the best student of the second year.

Bradford Technical College.

Head of Department: Professor W. M. Gardner, M.Sc. The Minor course extends over two years (afternoons and evenings); fees, 5*l.* 10*s.* (day course) and 7*s.* 6*d.* (evening course). Mr. W. West, F.L.S., pharmacist, lectures in pharmaceutics.

Brighton Technical College.

Principal: Mr. W. Beckitt Burnie, D.Sc. Day and evening classes in subjects for the Minor are arranged.

Bristol University.

Registrar: Mr. James Rafter. Courses, including chemistry, botany, pharmacy, and materia medica, can be obtained. Mr. O. C. M. Davis, D.Sc., F.I.C., Ph.C., lectures on materia medica. The session opens on September 30.

Derby Technical College.

Principal: Mr. F. W. Shurlock, B.A., B.Sc. Mr. S. Taylor, Ph.C., provides the tuition in pharmacy and materia medica on Wednesdays; fee, 1*l.* 1*s.* per term. Chemistry and botany classes are also available.

Huddersfield Technical College.

A full Minor course is provided, the instruction in pharmacy and materia medica being given by Mr. J. B. Broadbent, Ph.C., on Wednesday afternoons; fee, 6*l.* 6*s.* per annum. Evening classes (chemistry, botany, and physics) cost 15*s.* 6*d.*, with an extra 25*s.* for afternoon pharmacy.

Leeds College of Pharmacy.

Principal: Mr. F. Pilkington Sargeant, Ph.C., F.C.S. Full-time courses for the Minor begin on October 14, and part-time classes on October 15. There are separate classes for lady students.

Leeds Central Technical School.

Secretary: Mr. James Graham, Educational Department, Leeds. The Minor course is under the general direction of Mr. J. H. Gough, Ph.C., and commences on September 22.

It extends over two sessions on three evenings a week; fee, 3*l.* per session; preparatory course, 15*s.* per session. Preliminary examination classes are arranged at the Central School of Commerce, Woodhouse Lane, Leeds; fee, 30*s.* per session.

Leicester Municipal Technical School.

The Minor course in the specially fitted pharmacy department is covered in three years. Apprentices may attend special day courses for the Preliminary examination at their employer's expense.

Liverpool School of Pharmacy,

18 Colquitt Street.

Principal: Mr. H. Humphreys Jones, F.C.S., Ph.C. Revision course for the October Minor starts on August 13; fee, 4*l.* 14*s.* 6*d.* The full course begins on September 10, and others commence in January and April; fee 9*l.* 9*s.*, or 15*l.* 15*s.* for the double course. Wednesday part-time classes (3 P.M. to 10 P.M.) begin on same date, and cover the Minor syllabus by the end of June. Revision class on Tuesdays, 3 P.M. to 10 P.M.

Liverpool University.

Special courses are provided in the School of Pharmacy for the Pharmaceutical Society's examinations. The Junior course is adapted to the Minor, and the Senior course is suitable for the Major. The composition-fee for the session (October to July) is 18*l.* 18*s.*, or the subjects may be paid for separately. Mr. Prosper H. Marsden lectures in pharmacy and materia medica. Apply to the Registrar for prospectus.

Manchester University.

The Minor and Major courses in the Pharmaceutical Department commence on October 1 and extend over six or nine months, the composition-fees being 15*l.* 15*s.* and 19*l.* 19*s.* respectively. Students with previous adequate knowledge of science subjects can arrange to attend one whole day each week. Degree courses in pharmacy are available here; average cost per session, 20*l.* to 25*l.* Several entrance scholarships are offered for competition suitable for students completing their apprenticeship. Mr. James Grier, M.Sc., is the pharmacy instructor. A three-month course in bacteriology is also available for Major students; fee, 2*l.* 2*s.*

Northern College of Pharmacy,

100 and 102 Burlington Street, Manchester.

Principal: Mr. E. G. Bryant, F.C.S., Ph.C. Assistant Master: Mr. H. Berry, Ph.C. Short revision course for the Minor starts on August 18. A four-month Minor course begins on September 1; fee, 10*l.* 10*s.* Three-month courses start early in October, January, and April; fee, 9*l.* 9*s.* Afternoon, once-a-week, and evening courses commence the first week in September and January; fees, 2*l.* 10*s.* to 4*l.* 4*s.* Students who have completed a year's course of part-time classes are eligible to compete for the Clayton Scholarship providing four months' free tuition and books value 1*l.* Major courses are also provided. The laboratories and dispensaries have recently been refurnished. Correspondence tuition is provided, that for the Minor and Major being under the direction of the Principal, and for the Preliminary in the care of Mr. S. A. Bryant, A.C.P.

Manchester College of Pharmacy,

225A and 227A Oxford Road.

Principals: Mr. Harry Brindle, F.C.S., Ph.C., Fairchild Scholar, and Mr. Chas. Turner, F.C.S., Ph.C. Full courses of instruction for the Minor begin on August 25 and September 29 and the first weeks in January and April. Part-time classes commence on September 2 and 3. Instruction in the subjects of the Major examination and for the Apothecaries' Hall certificate is also available.

North of England School of Chemistry and Pharmacy,

55 Northumberland Street, Newcastle-upon-Tyne.

Principal: Mr. J. Stableford Hill, Ph.C. Three-month terms begin on first Monday in October, January, or April; fee, 8*l.* 8*s.* A short revision class for the October Minor commences early in August; fee, 5*l.* 5*s.* Part-time classes are held on three evenings a week, and on Wednesdays from 2 P.M. to 9.30 P.M.; fee, 3*l.* 3*s.* per term. Major course, 7*l.* 7*s.* per term.

Nottingham School of Pharmacy,

49 St. James Street.

Principal: Mr. S. Royce, Ph.C. Day courses for the Minor begin early in September (fee, 9*l.* 9*s.*) and in October, January, and April (fee, 8*l.* 8*s.*). Afternoon and evening classes cost 1*l.* 1*s.* to 2*l.* 7*s.* 6*d.* per term of three months.

Nottingham University College.

Registrar: Mr. T. P. Black, M.A., Ph.D. Evening courses (must not be less than four hours per week) preparatory for the Minor examination cost 10*s.* 6*d.* per session, or 7*s.* 6*d.* per session each single class.

Plymouth Municipal Science Schools.

Principal: Mr. J. B. Brown, B.Sc. The evening pharmaceutical courses in chemistry and botany extend over four years. Fee, 10*s.* per session.

Portsmouth Municipal College.

Principal: Mr. Oliver Freeman, A.R.C.S., B.Sc. A part-time pharmaceutical course (day) has been arranged covering the subjects for the Minor in three years.

Sheffield Central Secondary Schools.

Principal: Mr. Hiffe, M.A. The pharmaceutical course (evening) extends over three years. Mr. E. Preston, Ph.C., is the instructor for pharmacy and materia medica. Fees, 4*s.* to 15*s.* 6*d.*

Hartley University College, Southampton.

Courses in subjects for the Minor can be arranged.

North Stafford School of Chemistry and Pharmacy, Stoke-on-Trent.

Principal: Mr. E. Griffiths, Ph.C., Kidsgrove, Stoke-on-Trent. Complete day and evening courses for the Minor.

Wolverhampton Municipal Science and Technical School.

A three-year course of instruction for the Minor examination commences on September 15; fee, 7*s.* per session.

SCOTLAND.

Robert Gordon's Technical College, Aberdeen.

Teacher of the School of Pharmacy: Mr. Gilbert Simpson, Ph.C. A short course begins on August 25; fee 3*l.* 3*s.*, or 8*l.* 8*s.* with succeeding term. Ordinary terms commence on October 6, January 5, and April 6; fees, 7*l.* 7*s.*, and 6*l.* 6*s.* per term after the first. Major course (practical work only) costs 3*l.* 3*s.* per term. Evening classes (Mondays, Tuesdays, and Fridays) begin on September 29; fees, 10*s.* 6*d.* to 1*l.* 1*s.* per subject.

Royal Dispensary and School of Pharmacy of Edinburgh, 21 West Richmond Street.

Staff: Mr. William Duncan, Ph.C., F.C.S., Principal, and Messrs. W. Mackenzie, Ph.C., and Henry Stout, Ph.C. The next session opens on October 2. Complete courses for the Minor also begin in January and April; fee, 8*l.* 8*s.* per term. Evening classes are held on Mondays, Thursdays, and Fridays, commencing September 29; fee, 3*l.* 3*s.* for three months. Major course (three months) costs 10*l.* 10*s.*

Central School of Pharmacy,

26 Clyde Street, Edinburgh.

Staff: Mr. W. Beaverley Cowie, Ph.C., F.C.S., Principal, and Mr. B. McDonald Brander, Ph.C., Pereira medallist. Full courses of instruction for the Minor examination begin early in October, January, and April; fee, 8*l.* 8*s.* per term. Evening classes are also held; fee, 3*l.* 3*s.* per term. Tuition for the Major examination can be arranged.

Heriot Watt College,

Chambers Street, Edinburgh.

Principal: Mr. A. P. Laurie, M.A., D.Sc. Mr. William Duncan, Ph.C., F.C.S., lectures on pharmaceutics on Tuesday evenings; fee, 5*s.* There are also classes in chemistry and botany.

Glasgow School of Pharmacy,

Blythswood Chambers, 180 West Regent Street.

Staff: Mr. John Lothian, Ph.C., Medallist of the Pharmaceutical Society, Principal, and Messrs. Malcolm Irvine, Ph.C., Malcolm Mackinnon, M.A., and James Tulloch, M.A. A short tutorial day course for the October Minor begins on August 18; fee, 4*l.* 4*s.* The winter session, comprising three and six months' day courses for Minor, commences on October 6; fee, 8*l.* 8*s.* per quarter. There are also evening classes in pharmaceutical and Preliminary subjects.

IRELAND.

The Pharmaceutical Society of Ireland controls the practice of pharmacy in the Emerald Isle. There are two classes of qualified persons—pharmaceutical chemists (instituted under the Act of 1878), who can compound medical prescriptions as well as retail poisons; and registered druggists, who can keep open shop for the sale of poisons but may not compound medical prescriptions. This second class was instituted under an amending Act of 1890, and the chemists and druggists

then in business have similar rights. There is also an additional qualification of assistants to pharmaceutical chemists, these being entitled "to transact the business of a Licentiate of the Pharmaceutical Society in his temporary absence." The regulations for these examinations are published in pamphlet form, and intending candidates can obtain them from the Registrar of the Pharmaceutical Society of Ireland, 67 Lower Mount Street, Dublin. The Society conducts its own

Preliminary Examination

for those who wish to take the qualification of pharmaceutical chemist, or assistant to a pharmaceutical chemist, the subjects being: Latin, English, arithmetic, algebra, geometry, and either French or German or any modern language. Candidates obtaining 70 per cent. of the total marks, but not less than 50 per cent. in each subject, are awarded a pass with honours. The examination is held in Dublin on the first Thursday and following day in January, April, July, and October at 11 A.M. The fee, 2*l.* 2*s.*, has to be lodged with the Bank of Ireland to the credit of the Society, and the receipt forwarded to the Registrar along with birth certificate, at least fourteen clear days before the commencement of the examination. The fee for re-examination is 10*s.* 6*d.*

Any one of the following examinations is accepted in lieu of this Preliminary examination:

Matriculation or Preliminary examination of the University of Dublin, Public Entrance examination (large certificate).

The National University of Ireland, Matriculation examination.

The Royal Colleges of Physicians and Surgeons, Ireland, Preliminary examination.

Intermediate Education Board for Ireland, Junior, Middle, or Senior Grade examinations in English, Latin, arithmetic, algebra, geometry, and Greek, or a modern language; or such other examination as shall be deemed by the Pharmaceutical Council as equivalent thereto, all the subjects having been passed at one time.

Pharmaceutical Licence Examination.

Candidates presenting themselves for this examination must have attained the age of twenty-one and have passed the Preliminary examination prior to serving a *bona-fide* engagement for a term of four years as apprentice or assistant with, and in the sole employment of, a pharmaceutical chemist, chemist and druggist of Great Britain, or an apothecary, or a firm of legally qualified pharmaceutical chemists, chemists and druggists of Great Britain, or apothecaries, in an open shop, and the candidate must spend the business day with his employer. The latter provision prevents candidates obtaining the necessary declaration of service after spending a few hours daily in a pharmacy. Provision is made for service with more than one employer, and for those who have served four years with a chemist and druggist or registered druggist, two years' further service with a pharmaceutical chemist, or an apothecary, will suffice. Evidence must also be produced of attendance at a course of practical chemistry of not less than three months' duration (including 100 hours' actual work at the laboratory bench) at an approved institution in the list below, as well as a course of botany and materia medica at one of the institutions indicated by an asterisk, or at the School of Physic, Trinity College, Dublin:

* Pharmaceutical Society of Ireland, School of Chemistry.

* School of the Pharmaceutical Society of Great Britain, Cecilia Street School of Medicine, Dublin.

City of Dublin Technical Schools.

* Government School of Science, South Kensington.

* Queen's University, Belfast.

* Queen's University, Cork.

* Queen's University, Galway.

Royal College of Science for Ireland, Dublin.

Royal College of Surgeons in Ireland, Dublin.

Trinity College, Dublin.

Anderson's College Medical School, Glasgow.

* Royal Academic Institution, Belfast.

* The Municipal Technical Institute, Belfast.

* Mr. Templeton's School of Scientific Method and Chemistry, Belfast.

* Crawford Municipal Technical Institute, Cork.

Candidates who have not obtained their certificates for practical chemistry by October 1, 1913, will also have to complete at some approved school a course of not less than twenty-six lectures of one hour each on theoretical chemistry (attending at least twenty lectures) before entering upon the practical chemistry curriculum.

The examination, which commences on the second Wednesdays of January, April, July, and October, at 11 A.M., is held at the Pharmaceutical Society's House, 67 Lower Mount Street, Dublin. Notice of intention to attend must be given to the Council fourteen clear days before the date of the examination, this being accompanied by a receipt of having paid the fee of 5*l.* 5*s.* into the Bank of Ireland to the credit of the Society. A birth certificate, the Preliminary examination certificate, declaration as to service, and class certificates must also accompany the application. The necessary forms should be written for well beforehand. The examination is written, practical and oral, the subjects being:

Botany.—Recognition of the principal indigenous plants used in medicine, their natural orders, and characters of their several parts.

Materia Medica.—Recognition of B.P. drugs; their characters, active principles, sources, official preparations, and adulterations.

Chemistry.—Elementary laws of chemistry and physics, including equations. Recognition of B.P. chemicals; the processes by which they are obtained; qualitative analysis (including B.P. tests) and volumetric analysis; and a practical examination in these subjects. (The Council recommends Corbyn and Stewart's "Physics and Chemistry.")

Practical Pharmacy.—Translation of Latin prescriptions, detection of dangerous doses, and compounding and dispensing. Processes of making and recognition of B.P. non-chemical preparations, and an intimate knowledge of the Sale of Poisons (Ireland) Act.

The minimum pass percentage in pharmacy is 50, and in botany, materia medica, and chemistry 40 each, with 55 per cent. over all. Honours is given to those who take 70 per cent. of the total marks, with not less than 50 per cent. in any subject.

Assistants to Pharmaceutical Chemists' Examination.

The conditions for this examination are very similar to those of the Licence except that the candidate need not be twenty-one years of age nor have taken a special course of instruction. This examination is also held quarterly, being on the Saturday following the Licence examination, this allowing candidates rejected at the latter to enter for the Assistants' examination on paying a fee of 1*l.* 1*s.* There is also a registration-fee of 1*l.* 1*s.* for new candidates. The subjects are prescription reading and translation (with the detection of unusual doses), practical dispensing, materia medica, and pharmacy (chiefly recognition of non-chemical pharmacopoeial preparations, giving proportions of active ingredients), and the laws relating to the sale of poisons.

Registered Druggists' Examination.

This is open to anyone who has served as an assistant or apprentice for not less than four years to a pharmaceutical chemist, chemist and druggist, registered druggist, or licentiate apothecary keeping open shop. Application has to be made to the Registrar at least fourteen days before the date of the examination, which is held in Dublin and Belfast (if twelve candidates enter for the latter) on the second Tuesdays of January, April, July, and October. This must be accompanied by the necessary declarations of service and a receipt for 4*l.* 4*s.* (examination-fee 2*s.* 2*s.* and registration-fee 2*l.* 2*s.*) paid to the Bank of Ireland to the credit of the Society. The subjects of the examination are:

English orthography and composition.

Arithmetic and the weights and measures of the British Pharmacopoeia.

The appearance and properties of the various drugs and chemicals in general use.

The Sale of Poisons (Ireland) Act.

Six months must elapse before the unsuccessful candidate can re-enter for any of the Irish Society's examinations. The fees for re-examination are: Pharmaceutical

Licence, 2*l.* 2*s.*; Assistant to Pharmaceutical Chemist, 10*s.* 6*d.*; Registered Druggist, 10*s.* 6*d.*

The Calendar of the Society (2*s.* 3*d.* post free from the Registrar) contains the questions set at all the written examinations of the Society.

The educational establishments below provide approved classes of instruction in certain subjects for the Licence examination of the Pharmaceutical Society of Ireland.

Pharmaceutical Schools of Chemistry, Botany, and Materia Medica,

67 Lower Mount Street, Dublin.

Directors: Chemistry School, Professor P. Kelly, M.P.S.I., and Mr. G. Brownlee, B.Sc.; Botany and Materia Medica School, Dr. T. Mather Thompson, M.P.S.I., and Dr. J. A. Clarke, B.A. There are three sessions, commencing on the first day in October, January, and April. The fees for courses to meet the Society's regulations are: Theoretical chemistry (three months), 1*l.* 1*s.*; practical chemistry (six months), 6*l.* 6*s.*; practice course (three months), past students 2*l.* 2*s.*, students of other schools 3*l.* 3*s.*; botany and materia medica (three months), 2*l.* 2*s.* The theoretical chemistry class is held on Tuesday and Thursday evenings, and the practical chemistry class is held on Monday, Wednesday, and Friday evenings. A day class (three months) begins on April 1; fee, 6*l.* 6*s.* A day practice course also begins in April. The botany and materia medica classes are held on Tuesday and Thursday evenings, with occasional Saturday demonstrations. The chemistry and materia medica courses are recognised by the Royal Colleges of Physicians and Surgeons in Ireland.

Belfast Municipal Technical Institute.

The Pharmaceutical Section of the Pure and Applied Chemistry Department provides full courses in chemistry, pharmaceutical botany, materia medica, and pharmacy at evening classes. Fees, 5*s.* to 10*s.* per subject per session. For further particulars apply to the Principal.

School of Scientific Method and Chemistry,

The Gables, Botanic Avenue, Belfast.

Principal: Mr. S. Templeton, Assoc. R.C.S., F.I.C. The fees for the full courses of instruction for the Licence examination of the Pharmaceutical Society of Ireland are: Theoretical chemistry, 1*l.* 1*s.*; practical chemistry (100 hours), 4*l.* 4*s.*; botany, 1*l.* 1*s.*; materia medica, 1*l.* 1*s.*; pharmacy, 1*l.* 1*s.* The new terms begin on September 2 and January 6. Revision courses and classes for the Pharmaceutical Assistants' and Registered Druggists' examinations are also held.

Apothecaries' Certificates.

Certificates of competency are granted after examination by the Society of Apothecaries, London, and the Apothecaries' Hall in Dublin. These certificates do not enable the holders to keep open shop, but are accepted by some institutions as evidence of skill in compounding, and Apothecaries' Assistants can act as dispensers under the National Insurance Act if supervised by a qualified chemist.

The Society of Apothecaries of London holds examinations at the Apothecaries' Hall, Blackfriars, on the fourth Mondays in January, April, July, and October. The examination is in two parts—oral and practical—comprising the compounding and dispensing of medicines; chemistry; materia medica and pharmacy; and the translation of prescriptions. Candidates must be nineteen years of age, and a certificate of general education is required before the certificate can be granted. The entry-form must be filled in and returned with the proper examination-fee (5*l.* 5*s.* for first appearance and 3*l.* 3*s.* for re-examination) at least fourteen days before the date of examination. A certificate must also be sent showing that special instruction has been taken in practical pharmacy for six months. The latter declaration must be signed by a registered medical practitioner, or an assistant of the Society holding a public appointment, or a legally qualified chemist. A copy of the regulations can be obtained from the Secretary of the Court of Examiners, Mr. Frank Haydon, L.R.C.P.

The Apothecaries' Hall of Ireland, 40 St. Mary Street, Dublin, holds an examination for the certificate of assistant on the first Friday of each month except August. Candidates must be eighteen years of age, and have spent two years at practical pharmacy under the superintendence of a registered apothecary or pharmaceutical chemist, and show that they are of good moral conduct. The subjects of the examination are: Practical and theoretical pharmacy, materia medica, antidotes for poisons, pharmaceutical chemistry, and the metric system of weights and measures. Notice must be given and the fee, 4*l.* 4*s.*, paid to the Secretary at least seven days prior to the examination.

Degrees in Pharmacy.

The Universities of Manchester and Glasgow are the only two educational bodies which have instituted a degree in pharmacy.

Manchester.—The course of instruction after Matriculation in the Pharmaceutical Department of the University extends over three years, preparing the student to take the Minor examination (first year), the Major examination (second year), and to graduate in three years. There are two examinations for the degree itself. The Intermediate examination at the end of the first year in: (i) Physics, with practical work; (ii) chemistry, with practical work; (iii) botany, with practical work; and the Final examination in: (i) Chemistry or botany; (ii) pharmaceuticals; (iii) the candidate must also present a certificate of having attended an approved course in French or German. Full particulars are given in the Prospectus of the Pharmaceutical Department, University of Manchester. The Final examination (Honours course) includes inorganic and organic chemistry and one other advanced course in chemistry, together with pharmaceutical chemistry and pharmaceutical botany.

Glasgow.—The conditions under which the degree of Bachelor of Pharmacy is granted are similar to those for science degrees. A detailed statement of the studies recommended is contained in the regulations for the degree, to be obtained from the Registrar, Glasgow University. There are two examinations: *First Science Examination* in mathematics or biology (*i.e.*, zoology and botany), natural philosophy, and chemistry; and *Final Science Examination* in chemistry, botany, materia medica, and pharmacy. Before entering for the Final, candidates must, *inter alia*, be registered chemists and druggists or graduates in medicine.

Proposed "Assistant Dispensers" Qualifications.

In a letter to the General Medical Council dated February 6 the Pharmaceutical Society invited co-operation in connection with a draft Bill for establishing a qualification to act as an assistant dispenser to a pharmacist, and the General Medical Council has since approved of the Bill with some slight modification of one of the clauses. The Bill is in the hands of an Emergency Sub-Committee of the Parliamentary and General Purposes Committee of the Council of the Pharmaceutical Society. The Bill proposes to set up a Register of Assistant Dispensers, to include the so-called "three-year dispensers" under the National Insurance Act, and those who pass an elementary examination in prescription-reading, posology, and pharmacy, to be called the Assistants' examination (*C. & D.*, June 7, index folio 885). Apparently the proposed Assistants' examination will be on the lines of the Assistants' examination of the Apothecaries' Hall outlined above, and the Apothecaries' Hall qualification will probably be an alternate mode of qualifying as an assistant dispenser.

The Society of Apothecaries is promoting in Parliament a Bill to enable those who have passed its Assistants' examination to use the title "Certificated Dispenser of the Society of Apothecaries," and "to dispense and compound medicines and prescriptions for or on behalf of any duly qualified medical practitioner, pharmacist, hospital, dispensary, sanatorium, infirmary, provident or friendly society, or public authority." The Bill thus aims at removing the disability of holders of the Apothecaries' Assistants' qualification, who are only examined in regard to their acting as assistants to Licentiates of the Apothecaries' Society.

Pharmaceutical Reciprocity.

Of recent years considerable progress has been made in establishing reciprocity regarding pharmaceutical qualifications within the British Empire, but this is still far from complete. For instance, in Australia pharmaceutical reciprocity is now practically complete, but in South Africa there is none. At home the Pharmaceutical Society of Great Britain and the Pharmaceutical Society of Ireland do not reciprocate as regards their pharmaceutical qualifications. Again, the Minor examination and the Irish Licence are accepted in nearly all our Colonies as entitling the holder to set up in business as a chemist, but in Canada the holder of either of these can only act as an assistant, and if he wishes to set up shop he must take the qualification of the particular Province in which he desires to be in business.

Chemical and Physical Science.

THE ANALYTICAL PROFESSION at the present time shows signs of overcrowding, but nevertheless each year sees an increasing number of pharmacists succumbing to the attraction of the analyst's career. The laboratories of manufacturing houses absorb a fair proportion of these, and some secure analytical appointments or set up in private practice. At the present time the hall-mark for the analyst is undoubtedly the qualification of the Institute of Chemistry, the science degree being regarded as evidence of theoretical training. It may be pointed out that it is not essential to have any qualification to act as an analyst, but it requires a reputation already made to make any headway without one. Either a degree in science or the Institute of Chemistry's examinations practically require three years' curriculum, although it is possible to take, *sine curriculo*, the external degree of the University of London, and this degree admits holders to the Intermediate examination of the Institute. The works chemist is becoming more and more an important factor in modern industries, but he is, generally speaking, a specialist who has obtained most of his training in the industry itself. However, the advantage of utilising the services of the young scientists who have first obtained a general training is forcing itself upon manufacturers.

Analytical and Technical Chemistry.

THE INSTITUTE OF CHEMISTRY OF GREAT BRITAIN AND IRELAND (founded 1877), 30 Bloomsbury Square, London, W.C., gives full particulars of the necessary training for its examinations in the Institute's book of regulations, which is supplied *gratis*. The Associateship and Fellowship of the Institute are definite qualifications, and Branch E (Food and Drugs, etc.) possesses special attractions for pharmacists, as the Local Government Board now practically insists that the holders of public analytical appointments shall possess this certificate, and this is the one that the pharmaceutical student who has fulfilled the necessary conditions finds little difficulty in taking. The following is an outline of the Institute's regulations:

Admission to the *Studentship* is open to candidates of at least seventeen years of age who have passed an approved Preliminary examination and who are at the time of application training at a recognised institution or under a Fellow of the Institute. The student's annual registration-fee is 5s.

Candidates before entry to the *Intermediate examination* must have passed an approved Preliminary examination, and have studied at an approved college for three years, or have been pupils with a Fellow of the Institute for two years and attended college for two more years, or graduated in chemistry and physics at a recognised university. The course of study required includes theoretical and practical chemistry, physics, mathematics, and a fourth subject selected from the following: Higher physics, advanced mathematics, mechanics, and chemical engineering, metallurgy, geology and mineralogy, physiology, bacteriology, agriculture, elementary botany, and elementary biology. The fee for the Intermediate examination is 5*l.* 5*s.*

Candidates who have taken first or second class Honours in chemistry or have obtained special distinction in chemistry for the degree examination of an approved university, can, generally speaking, be admitted directly to the Final examination of the Institute.

All candidates must pass the *Final examination* (fee 5*l.* 5*s.*, or for candidates exempted from the Intermediate examination 10*l.* 10*s.*). In addition to a general knowledge of chemistry, special knowledge is required in the one branch for which the candidate enters—*viz.*, mineral chemistry, metallurgical chemistry, physical chemistry, organic chemistry, analysis of food, drugs, fertilisers and feeding-stuffs, soils, and water (including a compulsory examination in therapeutics, pharmacology, and microscopy), or biological chemistry. Candidates for the examination in chemistry of food and drugs, etc., which is recognised by the Local Government Board in connection with appointments of public analysts, are required to produce evidence of training in elementary botany. Candidates in the branch of biological chemistry must show that they have taken a course of elementary biology. All candidates for the Final examination are required to translate French and German technical literature into English, with the aid of dictionaries, to the satisfaction of the examiners.

The candidate on passing the Final examination is eligible for election as Associate of the Institute of

Chemistry (A.I.C.), Fellowship being conferred three years later if evidence be produced that the Associate has, during that time, been continuously engaged in applied chemistry. Associates or Fellows are allowed to enter for further examinations in any of the following branches only: (1) Food and drugs, to qualify for public analyst, fee 5*l.* 5*s.*; (2) biological chemistry, fee 5*l.* 5*s.*; (3) special examination in technological chemistry, for which practical technological training is required in the branch selected—*e.g.*, gas-manufacture, steel-manufacture, or the fat and oils industry—fee 3*l.* 3*s.* Special certificates are given to candidates who pass these examinations. The entrance fee to the Fellowship is 5*l.* 5*s.* The annual subscription for Fellows and Associates is 1*l.* 1*s.*, and life composition-fee is 21*l.*

THE IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY (incorporated 1907) provides highly specialised instruction in industrial science. It carries on the work of the Royal College of Science, the Royal School of Mines, and the City and Guilds (Engineering) College is an integral part. Candidates are required to pass the respective entrance examinations of the Institutions, or to obtain exemption therefrom. The diploma of A.R.C.S. is issued after three years' satisfactory study in mechanics, physics, chemistry, botany, zoology, and geology; of A.R.S.M. after a satisfactory four years' training in mining and metallurgy; and of A.C.G.I. after three years' satisfactory study in civic, mechanical, or electrical engineering. The chemistry department is under the direction of Professor H. Brereton Baker, F.R.S. A department of chemical technology has been established under the general direction of Professor W. A. Bone, D.Sc., Ph.D., F.R.S. A new building for this department is in course of erection, in which will be given courses on (i) chemistry of gases and combustion (including gas-analysis); (ii) technology of fuel; (iii) the design and erection of chemical plant. The diploma of the Imperial College of Science and Technology (D.I.C.) is also awarded. The Calendar of the Imperial College is published by Messrs. Eyre & Spottiswoode, Ltd., London, E.C., price 6*d.*

Degrees in Science.

A graduate in science usually undergoes a curriculum of at least three academical years at the University granting him his degree, only the University of London admitting External students to special degree examinations *sine curriculo*.

The University of London conducts examinations for Internal and External students, the former having to undergo, after registration, courses of training at a school of the University or under recognised teachers. The regulations regarding degrees in science should be carefully studied before the student enters upon his course of training. They are obtainable from the Principal, University of London, South Kensington, London, S.W. A year must elapse after matriculation before entry for the *Intermediate examination* (fee 5*l.*) is permitted. Four subjects from the following, including at least one from the first three, must be taken: Pure mathematics, applied mathematics, experimental physics, chemistry, botany, zoology, geology, and military science. External candidates may take honours in any subject except military science, but little advantage accrues from this, as the compulsory number of subjects is not decreased thereby. The *Final examination* (fee 5*l.*) may be taken one year after passing the Intermediate, but three years must elapse between the Final and Matriculation examinations. Three out of ten (internal) or thirteen (external) prescribed subjects are to be taken in the Pass Final examination. Honour candidates take only one subject (of a much higher standard) along with an appropriate subsidiary subject. Degrees (including the *Doctorate in Science*) are also granted by research.

The English Provincial Universities and the University of Wales require similar subjects to the above, the examinations following on the lines of the approved course of study provided at each University. Full particulars are given in the Calendars of the respective Universities at

Birmingham, Bristol, Leeds, Liverpool, Manchester, and Sheffield, and of Wales.

At *Scottish Universities* the intending graduate in science need take only four of the seven subjects in his three years' curriculum at the University whose degree is desired.

The *Irish Universities* have rather divergent conditions for their degrees in science, and the Calendars of the three Universities should be consulted.

Technical Instruction.

The following are the chief institutions at which courses in pure science and technological subjects are available. Intending students should apply to the Secretary, giving full particulars of the courses they wish to follow, as many institutions will make special arrangements if necessary :

LONDON.

+ **BATTERSEA POLYTECHNIC**, Battersea Park Road, S.W.—Complete day and evening courses in chemistry, botany, physics, and engineering. There are also special evening classes in bacteriology; food and drug analysis; oils, fats, and soaps; and "recognised" London B.Sc. courses. Fees range from 1*l.* 5*s.* to 13*l.* 15*s.* per session for day students and from 5*s.* to 12*s.* 6*d.* per session for evening classes.

+ **BIRKBECK COLLEGE**, Bream's Buildings, Chancery Lane, E.C.—Complete courses (day and evening) for University of London science degrees. Secretary, Mr. H. Wells Eames.

+ **BOROUGH POLYTECHNIC INSTITUTE**, Borough Road, S.E.—A series of ten technical lectures on essential oils commences on October 1. Fee 5*s.*, or 10*s.* including practical work. Foodstuffs, electro-chemistry, and laundry materials are the subjects of other courses. Chemistry classes are also held, beginning on September 22; fees, 5*s.* to 10*s.* per session.

+ **CITY OF LONDON COLLEGE**, White Street, Moorfields, E.C.—Evening classes in chemistry (pure and commercial) and botany cost 10*s.* to 30*s.* per session for non-members.

* **EAST LONDON COLLEGE**, Mile End Road, E.—Classes in chemistry, physics, and botany. Intermediate and Final Pass B.Sc. courses; day 10*l.* 10*s.*, evening 5*l.* 5*s.*

+ **GOLDSMITHS' COLLEGE**, New Cross, S.E.—Degree classes (evening) in chemistry, botany, physics, and other sciences. Science courses, 2*l.* 2*s.* to 4*l.* 4*s.*

* **IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY**, South Kensington, S.W.—The sessional fees for the degree and diploma courses in science and engineering are from 36*l.* to 45*l.*

* **KING'S COLLEGE**, Strand, W.C.—The composition-fee in the Faculty of Science is 31*l.* 10*s.* per annum.

+ **NORTHERN POLYTECHNIC INSTITUTE**, Holloway, N.—The composite fees for the Intermediate and Final B.Sc. courses are: Day 15*l.* per annum, and evening 2*l.* 10*s.* to 5*l.* 15*s.* per session. Evening classes in chemistry, botany, physics, and photography cost from 5*s.* to 50*s.* each subject.

* **ROYAL HOLLOWAY COLLEGE**, Englefield Green, Surrey.—For women students only, mainly residential. Degree courses in science, fee 33*l.* 8*s.* 6*d.*, or without residence, 12*l.*

+ **SIR JOHN CASS TECHNICAL INSTITUTE**, Jewry Street, Aldgate, E.C.—Evening courses in chemistry, physics (fees 4*s.* to 10*s.*), and also special courses on the fermentation industries, fuel, metallurgy, and mining (fees 5*s.* to 10*s.*). The composition-fees for the B.Sc. course provided range from 30*s.* to 3*l.*

+ **SOUTH-WESTERN POLYTECHNIC**, Manresa Road, Chelsea, S.W.—Evening courses in chemistry and botany. The sessional fees for the B.Sc. course are: Day, 15*l.*; evening, 3*l.* New course on Tuesday evenings at 7 P.M., commencing September 23, on food and drug analysis.

+ **TECHNICAL COLLEGE**, Leonard Street, Finsbury, E.C.—Constituent of City and Guilds of London Institute. Fees for courses in industrial chemistry, 20*l.* per session.

* **UNIVERSITY COLLEGE**, LONDON, Gower Street, W.C.—Fees for three years' B.Sc. course, including chemistry, 111*l.* 1*s.*

WANDSWORTH TECHNICAL INSTITUTE, High Street, Wandsworth, S.W.—Evening classes in science; fee, 7*s.* 6*d.* to 15*s.* per subject.

+ **WEST HAM TECHNICAL INSTITUTE**, Romford Road, E.—Evening and day classes in chemistry and physics.

+ **WOOLWICH POLYTECHNIC**, Lower Market Street, Woolwich. Classes in chemistry and botany; fees, 7*s.* 6*d.* to 12*s.* 6*d.*

THE PROVINCES.

ABERDEEN.—*University*.—Degree courses in science.

ABERYSTWYTH.—*University College of Wales*.—Fee for the science course, 16*l.* per session, inclusive of practical work.

* Schools of the University of London.

+ Institutions having teachers recognised by the University of London.

BANBURY.—*Municipal School*.—Evening class in chemistry; fee, 7*s.* 6*d.* to 15*s.* per term.

BANGOR.—*University College of North Wales*.—Inclusive fees as at Aberystwyth.

BARROW-IN-FURNESS.—*Technical Schools, Abbey Road*.—Evening classes in chemistry; fee, 7*s.* 6*d.* to 10*s.* per session.

BELFAST.—*Queen's University of Belfast*.—Class fees in the Faculty of Science, 1*l.* 1*s.* to 3*l.* 3*s.*, except practical chemistry, the fee for which is 7*l.* 7*s.*

BIRMINGHAM.—*University*.—B.Sc. degree course in pure science costs about 12*l.* 12*s.* to 23*l.* per annum. *Municipal Technical School, Suffolk Street*.—Evening classes in chemistry, botany, and physics; fees, 5*s.* to 10*s.* per session (botany from 2*s.* 6*d.*).

BLACKBURN.—*Technical School*.—Classes are available in chemistry, physics, and botany.

BRADFORD.—*Technical College*.—Day course for science qualification or technological (dyeing) subjects, fee 13*l.* Evening: B.Sc. course, 21*s.*

BRIGHTON.—*Municipal Technical College*.—Day courses for University of London examinations; fee, 5*l.* 5*s.* per term.

BRISTOL.—*University*.—Degree courses in science; also evening classes in chemistry and botany. *Merchant Venturers' Technical College*.—Chemistry, physics, and botany classes (evening), 7*s.* 6*d.* to 10*s.* per subject.

CARDIFF.—*University College of South Wales and Monmouthshire*.—Classes are given in science subjects.

CORK.—*University College*.—A constituent College of the National University of Ireland. Class fees usually 1*l.* to 3*l.*, except practical chemistry, 5*l.*

DERBY.—*Technical College*.—Classes in chemistry, botany, and physics. Fees: Day, 10*l.* 10*s.* per course, or 10*s.* 6*d.* per subject per term; evening, 10*s.* 6*d.* to 1*l.* 1*s.* per annum.

DUBLIN.—*Royal College of Science*.—Three years' course for A.R.C.Sc.I. in applied chemistry.

DUNDEE.—*University College*.—Day classes in botany, chemistry, and physics; fees, 1*l.* 11*s.* 6*d.* to 4*l.* 4*s.* for each winter or summer session. *Technical College*.—Instruction in elementary science is available.

EDINBURGH.—*Heriot Watt College, Chambers Street*.—The day chemistry course is recognised by the University of Edinburgh and the Institute of Chemistry; composition-fees, 12*l.* 17*s.* to 16*l.* 16*s.* for the winter course and 3*l.* 3*s.* to 4*l.* 4*s.* for the summer laboratory course. Evening classes in chemistry, botany, physics, pharmaceuticals, and mycology cost from 5*s.* to 21*s.* per session.

EXETER.—*Royal Albert Memorial University College*.—The composition-fee for the degree course in science is 12*l.* 12*s.* to 18*l.* 13*s.* per annum. Evening classes in science, 5*s.* to 10*s.* per subject each session.

GALWAY.—*University College*.—A constituent College of the National University of Ireland. Courses and fees as at Cork.

GLASGOW.—*University*.—The class fees for the degree courses in science range from 1*l.* 1*s.* to 4*l.* 4*s.* per session for each subject, with higher fees (10*l.* 10*s.*) for practical chemistry. *The Royal Technical College*.—Day classes in chemistry, 1*l.* 11*s.* 6*d.* to 3*l.* 3*s.* The evening classes include chemistry, technical chemistry (oils and fats, fuel, gas manufacture), physics, botany, and bacteriology; fees, from 2*s.* 6*d.* to 2*l.*

HALIFAX.—*Municipal Technical College*.—Evening classes in chemistry, 7*s.* 6*d.* per course.

HUDDERSFIELD.—*Technical College*.—Full-day (fee, 6*l.* 6*s.* per session for chemistry or pharmacy) and evening courses (fee, 10*s.* 6*d.* per session) in chemistry, physics, botany, and other science and technological subjects.

HULL.—*Municipal Technical College, Park Street*.—Evening classes in organic and inorganic chemistry; fees, 5*s.* to 10*s.* per course. B.Sc. day course 3*l.* 3*s.* per term.

LANCASTER.—*The Storer Institute*.—Evening classes in chemistry, physics, and biology; fees, 7*s.* 6*d.* per course (including practical work), or 4*s.* per subject.

LEEDS.—*University*.—The composition-fee for science degree course is 27*l.* *Central Technical School, Cookridge Street*.—The sessional fee for the evening courses in chemistry is 7*s.* 6*d.* to 15*s.*

LIVERPOOL.—*University*.—Degree courses in science; fees, 3*l.* to 4*l.* per course. Laboratory, 6*l.* to 21*l.*

MANCHESTER.—*University*.—Degree courses in science; fees, 20*l.* to 35*l.* per session. The *School of Technology* also provides specialised instruction in applied chemistry.

NEWCASTLE-UPON-TYNE.—*Armstrong College*.—Fees for curriculum of B.Sc. Durham in pure science, 60*l.*

NORWICH.—*Technical Institute*.—Evening classes in chemistry or physics; fees, 3*s.* 6*d.* to 15*s.* per session.

NOTTINGHAM.—*University College*.—London University B.Sc. day course in chemistry; composition-fee, 6*l.* per term. Evening classes in chemistry, physics, botany; sessional fees, 7*s.* 6*d.* per class to 10*s.* 6*d.* per course.

PLYMOUTH.—*Municipal Science, Art, and Technical Schools.*—Day courses in science subjects cost 1*l.* to 5*l.* 5*s.* per subject, or degree course 12*l.* 12*s.* to 15*l.* 15*s.* per session. Evening classes 5*s.* to 10*s.* each, or course of study 10*s.*

PORTSMOUTH.—*Municipal College.*—Instruction in science subjects (including chemistry, physics, and botany) costs from 3*s.* 6*d.* to 15*s.* per course at evening classes and 5*l.* 5*s.* to 10*l.* 10*s.* per session at day classes.

READING.—*University College.*—B.Sc. course of London University examination, 24*l.* per session. Evening classes in chemistry and botany, 5*s.* to 12*s.* 6*d.* each.

ROCHDALE.—*Municipal Technical School.*—The fees for chemistry and botany (evening classes) are 6*s.* per subject.

ST. ANDREWS.—*United College.*—Class fees in University degree course cost 2*l.* 2*s.* for the summer session and 4*l.* 4*s.* for each winter session.

SALFORD.—*Royal Technical Institute.*—Evening chemistry and physics classes cost from 5*s.* to 15*s.* per session and day courses from 3*l.* to 6*l.* 6*s.* per session.

SHEFFIELD.—*University.*—Degree courses in science. Sessional lecture fees, 1*l.* 11*s.* 6*d.* to 4*l.* 4*s.* per course; laboratory fees, 2*l.* 12*s.* 6*d.* to 16*l.* 16*s.* per session. Evening classes in botany, chemistry, and physics, fee 10*s.* 6*d.* per course for each subject, and practical work 1*l.* 10*s.* *Central Secondary Evening School.*—Classes in chemistry and botany; fees, 4*s.* to 5*s.* per subject.

SOUTHAMPTON.—*Hartley University College.*—B.Sc. course; composition-fee, 24*l.* per session. Evening science classes at low fees.

SWANSEA.—*Technical College.*—Evening classes in chemistry, physics, and botany; fees: lectures 5*s.*, practical work 10*s.* per subject. Day courses are held.

Optical Diplomas.

The number of chemists who are taking up sight-testing and spectacle-fitting is still increasing. Those who now go in for the examinations belong to the younger generation, and it is becoming the practice to take a course in optics after passing the Minor examination, so as to be prepared for the eventualities of after-life. The practice which is necessary for success is acquired after the theoretical stage is over. We have said it many times, but take the opportunity of repeating our opinion that as a business or as auxiliary to the drug-trade, that of an optician is particularly suited for those who have had the training in detail and carefulness which results from an apprenticeship in pharmacy. The educational requirements of modern opticians and the institution of examinations in optics have all been in favour of chemists. The prices obtained for optical work are good as a rule. It is as well, however, to take a glimpse of the other side of the shield: The work is often exacting, and in cases the time taken over testing is hardly commensurate with the remuneration. Then, again, in single-handed businesses the proprietor is not always able to spare the time from the pharmacy to attend to sight-testing cases.

A chemist who intends taking up the subject should obtain first a copy of "The Chemist-Optician" (4*s.*, Office of the C. & D.), which we publish to show the scope of the knowledge required. We also strongly advise aspirants to obtain an optical diploma, which is evidence that the holder has gone through a proper training. This is a suitable place to mention that the Society of Chemist-Opticians, which was founded in 1904, is one to which opticians, or prospective opticians, should belong. Membership carries with it a weekly journal ("The Optician"). The Hon. Secretary is Mr. J. Harcombe Cuff, 25 Friern Barnet Road, London, N.

There are two diploma schemes now working in this country. Of these the best known is that of

THE SPECTACLE-MAKERS' COMPANY, 11 Temple House, Temple Avenue, London, E.C. The diploma scheme of the Company was founded in 1898, and has been revised at intervals on progressive lines. The Company's list of diploma-holders is advertised periodically in THE CHEMIST AND DRUGGIST and the "Daily Telegraph." There are now 1,000 holders of the Company's diploma, and a good proportion of these are chemists. The examination syllabus has been printed frequently in THE CHEMIST AND DRUGGIST, so that it will only be necessary to give the main features of the scheme, which are as follows:

There are two divisions of the examinations for the diploma in visual optics and sight-testing:

(1) The Preliminary examination, consisting of (a) optical bench work, (b) a *viva-voce* examination in general

and practical optics, and (c) a written examination in optical calculations and practical optics, and

(2) The Final examination, consisting of (d) a practical examination in the optical analysis of lenses, (e) practical examination in frame adjustments and measurements, optical prescriptions, and in lens setting, (f) *viva-voce* examinations in visual optics, (g) written examination in visual optics, and (h) practical examination in the adaptation of lenses to correct errors of vision.

Candidates over the age of forty years, who have spent ten years in the optical industry, are exempt from section c of the Preliminary examination. The next examination will be held at St. Bride Institute, Ludgate Circus, E.C., in the first week of November. Entries must be received before the end of September. The Company also intends holding an examination in Glasgow during the last week in November.

The list of books recommended for students is given in the syllabus. The fees are 3*l.* 3*s.* for each examination, and in addition the diploma costs 4*l.* 4*s.* Those who take up the freedom of the City of London, which they are entitled to when they have become freemen of the Spectacle-makers' Company, can do so on payment of one guinea. There are small annual payments to the Company for "quarterage." The full prospectus, with application form, can be obtained from the Clerk of the Company, Colonel T. Davies Sewell, F.R.A.S., 11 Temple House, Temple Avenue, London, E.C.

THE BRITISH OPTICAL ASSOCIATION (Incorporated 1895).—Secretary, Mr. J. H. Sutcliffe, F.B.O.A., 199 Piccadilly, London, W. The Association's scheme consists of two grades of examination, Membership (Intermediate certificate) and Fellowship, and these are held twice yearly in London (May and November), or in the provincial centres when a sufficient number of candidates desire it.

The examination for the Intermediate is practical and theoretical, and the theoretical part can be taken separately and in advance of the practical work, although no certificate is given until the practical examination is passed. The subjects in which the candidate is examined are lenses, frames, subjective sight-testing, dissection, physical optics, physiological optics, anatomy and physiology of the eye, photometry, and ethics.

For the Fellowship examination candidates must hold the Intermediate or dioptric certificate, and are examined in similar subjects as before, but a deeper knowledge is required, and prismetry, ophthalmoscopy, embryology, and microscopical demonstrations are included.

The examination-fees are: Intermediate Grade, 5*l.* 5*s.*; Fellowship, 5*l.* 5*s.*

What the Examinations are like.

A chemist who has passed recently both the Spectacle-makers' Company's and the British Optical Association's examination sends us his experiences as follows:

THE S.M.C. EXAMINATION.

The Spectacle-makers' examination was held on May 6 and 7, the Preliminary examination and Final being taken together, the practical work for the Preliminary being taken at St. Bride Institute on the morning of May 6. I was first sent for a *viva voce* on general optics, among the questions being: What is the effect of tilting a strong convex spherical lens? How to correct it. Difference between flint and crown glass. What is pebble, and how does it differ from glass? What advantages over glass? What is the effect of moving a strong convex lens away from the paper? How to find the magnification and what formula to use. How to find the refractive index of a given lens. What instrument is used to find the focal length of the lens? How to find the curvature of the surface. What formula connects the refractive index, radii of curvature, and focal length?

I was then sent to the optical bench, where I was given three lenses to find the focal length of each, and the choice of (A) making prism chart and finding strength of prisms given, or (B) drawing three Snellen's letters in reverse for use with a mirror. I chose B. The lenses turned out to be a convex cylinder, a strong convex sphere combined with a weak concave cylinder, and a strong concave sphere. The time allowed was one hour.

I was then sent off to a *viva voce* on general and practical optics with Dr. Drysdale. He showed me a cube of glass, and asked the effect of placing that on some printed matter. Draw a diagram of the rays of light as they pass through the

glass to the eye. How much up does the printing appear—refractive index of glass 1.6? Then several questions on trigonometry. This finished the morning's work.

For the second part of the Preliminary I attended the same day at 7 p.m. at the City of London Schools, the examination being preceded by an imposing spectacular display, the Master of the Company (Sir Marcus Samuel, Bart.) and other high officials and liverymen attending to open the papers. This part of the examination was written.

The Final examination on May 8 was held at 9 a.m. at St. Bride Institute. The first subject was sight-testing. I had two commissionaires to test for distance and reading—both eyes—take muscular balance, etc. Both were completed well within the time allowed—one hour. One was a very good subject, and the other not so good. Then followed a *viva-voce* examination on sight-testing and physiological optics. I was asked to trace a ray of light through the optical system of the eye. What is the power of the cornea and of the crystalline lens? What correction would be necessary to order if the lens were removed? What would be the effect if an emmetropic eye were lengthened 1 mm.? Why always under correct in myopia? What did I know of the extra-ocular muscles? What is their action? Point them out in model of eye on table. Another medical man then took me on a further *viva voce*. He asked: "What is squint? How is the amount of deviation found? What treatment would you suggest? What is usually the condition of a squinting eye? What is heterophoria? How detected and how treated? If a subject required -0.75 cyl. ax. 180° for distance, and for reading an addition of $+1.50$ sph., what combination would you order?" The answer I gave was " $+0.75$ sph. $\odot +0.75$ cyl. ax. 90° ."

I then went on to neutralising, and had five spherocylindrical lenses and a prism to neutralise in half-an-hour. Then followed face measurement. A patient had to be measured for reading and distance glasses, the time allowed being ten minutes. Five minutes was allowed to measure up and give full particulars of three frames so that if ordered from a wholesale house exact duplicates would be obtained. I had then to mark out a rough spherocylindrical lens for edging to fit an oval frame.

In the evening another three-hour written paper on sight-testing completed the examination.

On the whole, the examination appeared very fair, and should present no great difficulties to anyone who has put in a reasonable amount of work. But the time allowed for some of the practical work is none too long, especially for neutralising and frame measurement. The Preliminary examination presents the most difficulties on account of the mathematics required.

THE B.O.A. EXAMINATION.

The Dioptric Grade examination was held at the London University, Imperial Institute.

On arrival I was given a packet containing two glazed frames and a broken lens, with instructions to neutralise the lenses. One hour was allowed for this. I was then sent to a doctor, who asked me to fit up an emmetropic subject with a presbyopic correction. This completed, another examiner gave me fifteen minutes to test one eye of a subject with a dummy lens in front. This was finished well within the time, after which several questions were asked on the method used for sight-testing and what to do in certain cases. I had then to fit the subject with a presbyopic correction. I was then sent to the optical bench, where I was given a list of things and told to select four. My selection involved finding the refractive index of a given liquid with microscope provided, then trace a ray through a plate of glass and find refractive index of glass.

After lunch three frames were given to be bent into proper shape, and eight frames to value. The last item was by no means easy, as the material was gold-filled. A *viva voce* concluded the first day's work. Among the questions I was asked were: How is it that a person can see $\frac{1}{2}$ on a chart illuminated with a red light, and only $\frac{1}{2}$ when illuminated with a violet light? What is "far point"—where do you measure from? If a subject has a far point of 100 mm., what lens would he require? Can a lens be worn on the cornea? Where are lenses worn?

The difference between the Spectacle-makers' and the B.O.A. examinations is that much more mathematics is required for the former. In the practical work of the S.M.C. results count more than method. In the B.O.A. (Dioptric Grade) practical knowledge counts more than theory, and method of testing more than result. It took about six months to study for the two examinations, spending on an average about ten hours a week, including

the time at the college. It is essential, however, that a candidate should have had a good deal of practice at neutralising lenses, as this appears to be the most difficult part. As the subjects for the two examinations are almost identical, it is quite as well to work for the two at the same time.

Optical Instruction.

THE BRITISH OPTICAL INSTITUTE, 345 Clapham Road, London, S.W., prepares students for the examinations of the British Optical Association and the Spectacle-makers' Company, by means of day and evening classes. A special feature is made of correspondence courses for those unable to attend the Institute. Vacation classes, in the principles and practice of sight-testing, are held in London during the month of August. The Institute claims a high percentage of passes. It is well equipped for practical work, and has in connection with it a sight-testing clinic.

MR. A. E. GREY, 13 and 14 Spencer Street, Clerkenwell, London, E.C., receives pupils for personal instruction, practical work, and sight-testing.

MR. J. C. KIDD, 551 Cheetham Hill, Manchester, specialises in optical instruction for the examinations of either of the examining bodies. Mr. Kidd issues a syllabus of the courses of instruction which he conducts.

MR. LIONEL LAURANCE, Temple House, Temple Avenue, London, E.C., conducts, in association with Mr. H. Oscar Wood, courses of instruction in preparation for the examinations of the Spectacle-makers' Company. The tuition is both in class and by correspondence. The fees for the Preliminary examination are 4l. 4s., and for the Final examination in sight-testing 4l. 4s. Mr. Laurance is Official Instructor to the Spectacle-makers' Company, and is the author of the text-books for the Company's examinations—"General and Practical Optics" and "Visual Optics and Sight Testing."

LONDON OPTICAL INSTITUTE, 51 St. George's Road, London, S.W.—Conducted by Mr. W. J. Wright, assisted by Mr. A. W. Mills.

LONDON SCHOOL OF OPTICS, 47 Hatton Garden, London, E.C.—This school, carried on in connection with the Anglo-American Optical Co., provides instruction in general refraction and sight-testing by correspondence. The company also publishes Druiff's "Refraction" (10s. 6d.), a text-book largely used.

THE NORTHAMPTON POLYTECHNIC INSTITUTE, Clerkenwell, London, E.C.—The courses in optics are held in the British Horological Institute in Northampton Square. The full course of technical optics occupies two years, and consists of lectures, laboratory work, drawing-office work, tutorial classes, and workshop practice. A diploma in technical optics is awarded on the completion of a two-years' course with satisfactory records in examination and class-work. Evening students also receive certificates of attendance and satisfactory progress. The winter term begins late in September. The fees for the full-time day course are 15l. per session (until July). Partial courses (two afternoons a week) may also be taken, for which the fee is 3l. per session, and there are afternoon classes suitable for chemists in business who cannot leave during the whole day. The entire field of optics is covered both theoretically and practically, and students can specialise either in opticians' work or in optical instrument making. The prospectus of the optical department can be had by applying to Dr. R. Mullineux Walmsley, the Principal.

COLLEGE OF OPTICS, Glasgow and Edinburgh, is conducted by Mr. T. S. Baird, who has a more than local reputation as a teacher. Students are prepared for the examinations of the British Optical Association and the Spectacle-makers' Company. Address communications to Mr. Baird, 22 Bellwood Street, Langside, Glasgow.

MR. J. G. WALLBRIDGE, School of Optics, 227 Kensington, Liverpool, conducts optical classes, chiefly through the post. He also makes a point of his willingness to attend at chemists' places of business, or to instruct those within easy reach of Liverpool who can arrange periodical visits for practical work.

DIOPTRIC ASSOCIATION, 25 and 26 Hart Street, Holborn, London, W.C.—Optical coaching is given by correspondence or personally.

The Practice of Medicine.

By a series of Medical Acts beginning in 1852, the General Council of Medical Education and Registration is empowered to register all persons who desire to pursue the profession of medical practitioner in the United Kingdom, and the conditions imposed by that Council under the statutes are broadly:

(1) Registration as a Medical Student after passing a Preliminary examination in specified subjects before beginning

(2) A professional curriculum of not less than four years and nine months (*i.e.*, five winter and summer sessions) from the date of registration as a Medical Student; and

(3) Passing professional examinations of one or other of the licensing authorities of the Universities of the United Kingdom in the subjects of medicine, surgery, and midwifery.

The "Regulations" of the Council in regard to registration of medical and dental students (for the same Preliminary examination applies to dentistry as to medicine) are printed by the General Medical Council in pamphlet form at 6d., and published by Messrs. Constable & Co., Ltd., 10 Orange Street, Leicester Square, London, W.C. We advise intending students to get a copy of this pamphlet, which gives all the details that are necessary. The following are the subjects of

The Preliminary Examination.

(a) ENGLISH (grammar; paraphrasing; composition; questions on British history and geography).

(b) LATIN (grammar; translation into English from unprescribed Latin books; translation into Latin from English).

(c) MATHEMATICS (arithmetic; algebra, including easy quadratic equations; geometry, including the subject-matter of Euclid, books i., ii., iii., and simple deductions).

(d) One of the following subjects:

(1) GREEK (grammar; translation into English from unprescribed Greek books; translation into Greek from English); or

(2) A MODERN LANGUAGE (grammar; translation into English from unprescribed books; translation from English).

[In the case of natives of India or other Oriental countries, whose vernacular is other than English, an examination in a classical Oriental language (*e.g.*, Sanskrit, Arabic, Chinese) may be accepted as equivalent to an examination in Latin.]

The Council does not conduct an examination itself, but accepts certificates of examining bodies, a complete list of which is given in the Regulations referred to. Practically every educational authority in the British Empire, including all the Universities, and certain foreign Universities, are recognised so far as their Preliminary or Matriculation examinations are concerned.

THE COURSE OF STUDY.

The article below by a chemist and druggist, who is now a medical practitioner, on his experience as a medical student, is so much to the point that it relieves us of the necessity of dealing with the medical curriculum in detail. We may, however, point out that no part of the Pharmaceutical Societies' examinations is accepted in lieu of any part of the medical curriculum, unless the experience in practical pharmacy and dispensing. The Royal Colleges of Physicians and Surgeons in London, however, accept certificates of chemistry and biology studied at an approved school before registration as a Medical Student, but it must be distinctly understood that such evidence does not excuse the candidate from examination in the subjects by the Colleges, nor does it shorten the curriculum, as the Final examination cannot be taken in these or any other circumstances until the end of the prescribed period of four years and nine months after registration as a Medical Student.

From Pharmacy to Medicine.

I took my Minor at an early age, and remained for a few years in the same berth, but I was never really comfortable behind the counter, disliking the confinement and the late hours, although we closed at 8 P.M., and I had one half-day weekly. I cast about for some

outlet from my seeming hardships. Wholesale houses were sounded, with a view to getting into a scientific laboratory, with, of course, futile result, for I had no real qualifications for the post but my Minor certificate and a few South Kensington certificates in chemistry. Pure science had, as it has for many in pharmacy, a sort of charm, so I decided on trying for a London B.Sc. degree, and in due course, after much really hard work over old and almost forgotten subjects in and out of shop hours, I passed the London Matriculation. I took botany, chemistry, English, mathematics, and French; I had already a certificate from the Royal College of Physicians and Surgeons (Ireland), which would register me as a medical student. The first two subjects were quite elementary after the Minor; but the last three called for a great deal of work.

About this time a friend, a works analyst in an enamel and tin factory, rather damped my ardour for pure science by the poor account he gave of his own position. As a result, I turned to medicine, which I decided to try for, after many misgivings on the length of the five years' course. On October 4, 1907, I signed on as a medical student in a provincial school. I was not without money and had a good home within easy distance of my work.

My first year's work involved chemistry, physics, zoology, and human anatomy. In chemistry I was always well to the fore, scoring top marks in my terminal examinations; in physics and zoology I was less at home, while anatomy proved quite a new and difficult subject; but, having got over the first feeling of repulsion, one came away oblivious of the odour which I was assured by friends always came along at the same time. I was able to do some evening work in a pharmacy, going on three evenings a week from 5.30 to 8 P.M.

In the following June the first examination was successfully passed, and I had till October free, during which time I gave up study entirely, and did locum work, clearing about 20%. Hence during my first year the Minor training was very useful in chemistry and physics, while it enabled me to recoup funds by evening and locum work during the summer.

The second year was devoted to anatomy and physiology exclusively, and proved the most difficult year, with the exception of the Final. The only aid a Minor man gets from previous knowledge here is in the practical chemical physiology, where his analytical and manipulative knowledge is of real service. The examination in these subjects was successfully overcome, and I had a full time at locum work during the summer.

The third year's work consisted of lectures in surgery, pathology, and bacteriology, a massive subject, during the winter session, with practical pathology, materia-medica lectures, and practical pharmacy in the summer session. I was very much at home with the last two, and devoted more time than I ought revising my materia medica, as we covered practically the whole of the important matter in the subject in a few months, thus somewhat neglecting my pathology and bacteriology. During this year every student had to provide himself with a good microscope; mine cost about 15%. However, I was again successful in the summer. In practical pharmacy we had to dispense:

Supp. iodoform P.B.	...	...	vj.
Sig.: j. m.d.u.			
Tr. ferri perchlor.	...	...	3ij.
Sod. bicarb.	...	...	5iiss.
Aq. chlor. ad	...	...	3vj
M. Ft. mist.			
Sig.: 3ss. ter die ex aq. post cib. sum.			
(Here the tr. ferri perch. had to be made.)			
Pil. rhei co.	...	...	5ss.
M. Div. in pil. viij.			
Sig.: j. post prand. quotid. sum.			
Emp. canthar.	...	...	q.s.
Sig.: Pon. aur. dext. applic.			

The preparations had to be wrapped up and addressed, a feat which is notoriously badly done by the average medical student. Again I betook myself to summer locum work, going to a seaside resort for twelve weeks. I had to work hard, but the change did me much good, and I returned in October braced up for my fourth year's work.

As soon as one begins the third year hospital work starts in earnest, and each student is attached to a surgeon, and acts as his dresser and general help; this appointment lasts for six months, and necessitates attendance at hospital from 9 to 10 o'clock daily, Saturdays included. The next three months are spent in the out-patient casualty department, where injuries not sufficiently serious to occasion confinement to bed are dealt with. The afternoons are devoted to lectures and practical work, so that one has practically no time for shop work or dispensing, the only wage-earning work I was able to do during term being to help a friend in his pharmacy for three or four hours on Saturday night.

The fourth year's work included six months of medical clerking in hospital, when one is attached to a physician and goes round the wards with him, noting the physical signs and treatment of disease. Three months have also to be spent at *post-mortem* work—a risky and, to many, objectionable occupation. The afternoons were devoted to lectures in medicine, surgery, midwifery, mental diseases, public health, forensic medicine, and toxicology, and therapeutics and pharmacology. Again I derived great benefit from previous knowledge in toxicology and pharmacology, although in this latter the knowledge required is rather different from that which the Minor demands. It asks for precise information of how drugs act and the experimental proof of this. It is really a very fascinating subject to anyone who is already familiar with drugs. Once more I was successful in my summer examination, and again I journeyed to my old locum job by the sea.

The fifth year presented a formidable programme, so, after careful digestion of what it meant, I decided to abandon all thought of doing any work in pharmacy, and to concentrate all my energy on getting through the Final. This examination practically tests one's knowledge on all the work previously done, and calls, further, for extensive reading and practical work in medicine, surgery, midwifery, mental diseases, and eye diseases. There is a good deal of moving about from one hospital to another to get instruction in the different subjects and to see cases—e.g., fever hospital, asylum, general medical and surgical hospitals.

In my Final examination in June I was ploughed in one subject and referred for six months. It was rather disappointing, especially as I had hoped to be one of the few who go right through without a failure, and the hardness of my luck was not mollified by the knowledge that the whole of the subjects must be taken over again, as, according to the regulations for the degree for which I was a candidate, no credit is allowed for any part of the examination passed singly.

Once again my Minor certificate proved my best friend, and I closed my books for a whole three months and went to my old seaside locum berth. I was thoroughly washed out, for during the preceding months there had been barely time for proper meals, no time for proper exercise, no time for attending to health; the race was too keen, until finally one seemed to perish in the product of one's own metabolism. It took the whole of the summer before the relish for work returned, but it did return, and after careful application through October, November, and December, I found myself in possession of a registrable medical qualification—a University degree.

It will be seen from this account that a chemist has certain well-defined advantages. In my own case I think the chief was that I could devote the summer to locum work, but failure at my June examination would have robbed me of this.

It is the chemist's general scientific knowledge which helps him, and not so much his information in pure pharmacy.

Medical Diplomas.

ENGLISH DOUBLE QUALIFICATION.

The Royal College of Physicians of London and the Royal College of Surgeons of England grant a joint diploma (the "Double Qual."), enabling the holder to be registered as L.R.C.P. and M.R.C.S. Candidates have to undergo three Professional examinations during the five years' curriculum subsequent to registration as medical students. *The First Examination* is in chemistry, physics, biology, and practical pharmacy, and it may be taken immediately after passing the Preliminary examination. Candidates must produce evidence of having received instruction in all these subjects, unless they propose to postpone practical pharmacy until a later examination. The course in the first three must be studied at a medical school or other institution recognised by the Board, but it may be commenced or attended before the candidate passes his Preliminary examination. Six months' instruction in these subjects, taken at a recognised institution other than a medical school, will be counted as part of the Professional curriculum if it is taken subsequent to passing the Preliminary. The subjects may be taken in three parts, but chemistry and physics must be taken together. The fee for the whole examination is 10*l.* 10*s.* *The Second Professional Examination* is in anatomy and physiology, and both the subjects must be passed at one time. Evidence must be produced that the candidate has spent twelve months in dissecting the whole of the human body and attended courses of lectures in anatomy, physiology, and practical instruction in physiology and histology. The fee for the second examination is 10*l.* 10*s.* Before admission to the *Third or Final Examination*, the candidate must produce evidence that he has attended the specified portion of study laid down in the curriculum as set forth in the official regulations. These, along with the synopses of the examinations, can be obtained from Mr. Frederick G. Hallett, Secretary of the Conjoint Board, 8-11 Queen Square, Bloomsbury, London, W.C. The examination itself (fee 2*l.*) is in three parts, as follows:

Part I.: Medicine, including medical anatomy, pathology, practical pharmacy (if not taken before), therapeutics, forensic medicine, and public health. Part II.: Surgery, including pathology, surgical anatomy, and the use of surgical appliances. Part III.: Midwifery and diseases peculiar to women.

At least two years must expire after passing the second examination, and the Final cannot be completed before the expiration of five winter and five summer sessions from the date of passing the Preliminary examination.

Re-examination fees for all the various stages are smaller. Each of the Colleges grants its diploma separately, a convenience to University candidates who wish to specialise in either medicine or surgery.

THE SCOTTISH TRIPLE QUALIFICATION.

The Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons, Glasgow, grant three diplomas ("Triple Qual."), which can be obtained after one series of examinations held either in Edinburgh or Glasgow, or both. The diplomas are granted singly by the three co-operating bodies, but these single diplomas confer no right to registration, except as a qualification additional to those already on the register. The curriculum covers five years, and professional studies before registration as medical students are not recognised. There are four Professional examinations. The letters used to designate this diploma are L.R.C.P.E., L.R.C.S.E., L.R.F.P.S.G. Full particulars may be obtained from Mr. James Robertson, solicitor, 54 George Square, Edinburgh, or Mr. Alexander Duncan, B.A., LL.D., Faculty Hall, St. Vincent Street, Glasgow.

IRISH DOUBLE QUALIFICATION.

The Royal College of Physicians in Ireland and the Royal College of Surgeons grant a registrable diploma after examinations in Dublin by their Conjoint Board. The Professional examinations number four. The constituent Colleges also grant separate diplomas of L.R.C.P.I. and L.R.C.S.I. Address Mr. Alfred Miller, Royal College of Surgeons, Stephen's Green, Dublin, for all particulars.

LONDON APOTHECARIES' DIPLOMA.

The Society of Apothecaries of London grants a diploma in medicine, surgery, and midwifery, there being two examinations, viz.: *Primary* (fee 5*l.* 5*s.*) and *Final* (in two sections; fees 10*l.* 10*s.* and 5*l.* 5*s.*). Full particulars will be found in the official regulations and synopses, to be obtained from Mr. Frank Haydon, L.R.C.P., Society of Apothecaries, Water Lane, Blackfriars, London, E.C.

DUBLIN APOTHECARIES' DIPLOMA.

The Apothecaries' Hall of Ireland grants its licence to students who have complied with its conditions in regard

to curriculum and passed its three Professional examinations, the total fees for these being 31*l.* 10*s.* Full particulars are contained in the syllabus obtainable from the Registrar, Apothecaries' Hall, 40 Mary Street, Dublin.

Medical Degrees

carry with them the hall-mark of a university as well as qualification to practise, and on that account are more highly valued. The Matriculation examination (or an accepted equivalent) of the university whose degree is required is the first step towards a medical degree. The subjects taken for this generally include those detailed in the General Medical Council's regulations for registration, but it is, curiously enough, possible to proceed to the London degree in medicine without having taken Latin.

ENGLAND.

The University of London allows for its external degree the most liberal provision as to institutions where the prescribed course of study may be taken. The University of Durham requires only one year of professional study to be taken at the College of Medicine, Newcastle-on-Tyne; while at Leeds, Liverpool, Manchester, and Sheffield Universities two of the five years' curriculum must be spent in the University granting the degree. The Universities of Bristol and Cambridge require three years' residence, and at the University of Birmingham three or four years of the prescribed period must be spent at the University. The Oxford degree in medicine usually requires seven years' residence.

Birmingham.

Medical degrees granted: M.B., Ch.B., M.D., and Ch.M. There is a B.Sc. in the subject of public health and a diploma (D.P.H.) in public health. Of the five years' curriculum, three or four (according to circumstances) must be passed at the University. The first four of the five Professional examinations have a fee of 2*l.* each, and for the Final the fee is 8*l.* Candidates may enter the Professional examination in chemistry, physics, and biology before commencing residence in the University. Full particulars can be obtained from the Secretary, Mr. Geo. H. Morley.

Bristol.

There are three Professional examinations for the M.B., Ch.B. degrees. Three of the five and a half years' course of study must be taken in the University. Degrees of M.D. and Ch.M. are also granted, as well as a diploma in public health (D.P.H.). The Registrar supplies full particulars.

Cambridge.

The degrees conferred are M.B., B.C., M.D., and M.C. Those who have not taken the B.A. degree must pass the previous examination or other examination accepted by the University, and conform to the General Medical Council's professional curriculum at Cambridge and/or elsewhere. Residence at the University for nine terms (three years) at least is required. There are three Professional examinations leading up to the degrees of B.C., M.B. An Act has also to be kept in the Public Schools, the candidate reading an original dissertation composed by himself on some subject approved by the Regius Professor of Physic.

Durham.

Six degrees in medicine and diplomas in public health and psychiatry are granted. The Professional examinations for the M.B. degree are four in number (fees 25*l.*). At least one of the five years of professional education must be spent at the College of Medicine, Newcastle-on-Tyne. For further particulars address the Secretary, The College of Medicine, Newcastle-on-Tyne.

Leeds.

Four degrees in medicine are granted: M.B. and Ch.B., M.D. and Ch.M., as well as diplomas in public health and psychological medicine. There are three Professional examinations for the M.B., Ch.B. degree, each of which is taken in parts, the fees amounting to 15*l.* Five years' curriculum is necessary, and of these two years must be spent in the University. Address communications concerning classes, etc., to the Dean of the Medical Faculty, and those relating to the examinations, degrees, etc., to the Clerk of the Senate.

Liverpool.

The arrangements for the degrees of M.B. and Ch.B. are very similar to those at Leeds University (*q.v.*). The

degrees of M.D., Ch.M., and M.H. (Master of Hygiene) are also granted, as well as a diploma of tropical medicine (D.T.M.). Address the Dean of the Faculty of Medicine.

London.

The degrees conferred are: Bachelor of Medicine (M.B.), Bachelor of Surgery (B.S.), Doctor of Medicine (M.D.), and Master of Surgery (M.S.). There are two classes of medical students, internal and external; the former pursue a course of study approved by the University, either (a) under the direct control of the University or a committee appointed thereby, or in any one or more schools of the University; or (b) under one or more of the appointed or recognised teachers of the University. External students are allowed liberal provision as to places of study. The three Professional examinations for both classes are the same, the fees amounting to 25*l.*

Manchester.

The arrangements at the University of Manchester in regard to the degrees of M.B. and Ch.B. are the same as at Leeds (*q.v.*). Two years of the curriculum must be passed at the University, and the Professional examinations taken there. Degrees of M.D. and Ch.M. are also granted. Address the Dean of the Faculty of Medicine.

Oxford.

There are two degrees in medicine (B.M. and D.M.), two in surgery (B.Ch. and M.Ch.), and two diplomas in public health and ophthalmology. Graduates in Arts are alone eligible for the degrees, the most convenient course for medical students being to take Responsions, the Preliminary Science examinations, and the Final Honour School of Physiology. The curriculum requires residence in Oxford for seven years. Full particulars from the Regius Professor of Medicine, University Museum, Oxford.

Sheffield.

The medical degrees are: M.B., Ch.B., M.D., and Ch.M. There is also a diploma in public health. At least three of the five years of the Professional curriculum must be taken in the University. The three Professional examinations are each divisible into two parts. Address, in respect to examinations, Mr. W. M. Gibbons, M.A., the Registrar; and on other matters Dr. Arthur J. Hall, Dean of the Faculty of Medicine, The University, Sheffield.

WALES.

The University of Wales now grants degrees in medicine (M.B., Ch.B.) and a diploma in public health, the scheme of study for these being in two parts, each extending over three academic years. Of the entire scheme at least three years must be pursued in one of the constituent colleges. Full particulars can be obtained from the Registrar, University Registry, Cathay's Park, Cardiff.

SCOTLAND.

The Scottish Universities all grant the degree of Bachelor of Medicine and Bachelor of Surgery on the same conditions. Of the five years' curriculum for the degree not less than two years (or six terms of medical study) must be spent in attendance at the chosen University.

Aberdeen.

The degrees granted by the University are M.B., Ch.B., M.D., and Ch.M. There is also a diploma in public health. At least two of the five years' curriculum, and at least eight of sixteen specified subjects for M.B., B.Ch., must be spent or taken in the Aberdeen University or some other University or College recognised by the University Court, and there are four Professional examinations to be passed (fees 23*l.* 2*s.*). The Secretary, Mr. D. R. Thom, University of Aberdeen, will supply further particulars.

Edinburgh.

Four degrees in medicine and surgery are conferred as at Aberdeen University, the conditions of entry, Professional examinations, and total fees (23*l.* 2*s.*) being the same. Address inquiries concerning medical degrees to Professor Harvey Littlejohn, M.A., M.B., B.Sc., Dean of the Medical Faculty; and regarding the Preliminary examination to Mr. James Dowie, The University, Edinburgh.

Glasgow.

The degrees conferred in medicine and surgery number four, the conditions for the M.B. Ch.B. qualification being the same as at Aberdeen. In respect of professional studies, address Professor Noël Paton, M.D., Dean of the Faculty of Medicine. Women students should apply to the Mistress, Queen Margaret College, Glasgow.

St. Andrews.

Four degrees are granted, as at Edinburgh. Medical students may take the whole of their curriculum at the University College, Dundee, or the first two years in the United College. Address Professor Kynoch, University College Medical Faculty, Dundee, for further particulars.

IRELAND.

The National University of Ireland confers degrees in medicine upon persons who have pursued its prescribed course of study, including at least nine terms at one or more of its constituent colleges. The Queen's University of Belfast also requires its matriculated students to take three of the five years' course of study in the University before granting its medical degrees. The University of Dublin (Trinity College) examines candidates for its medical degrees who are of B.A. standing and have studied at its Medical School for five years.

Belfast.

Six degrees of medicine are granted in the Faculty of Medicine of Queen's University of Belfast. Students for the Final examination must matriculate and take at least three of the five years' course of study prescribed at the University, and pass four medical examinations.

Dublin.

The degrees granted by the National University of Ireland are M.B., B.Ch., B.A.O., and the corresponding masterhips, also a bachelorate and doctorship in public health. There are four Professional examinations for the M.B., B.Ch., and B.A.O. degrees, the full five years' curricula for which are obtainable at the University College, Dublin. The M.B., B.Ch., and B.A.O. degrees of the University of Dublin (Trinity College) require five years' residence after becoming a Bachelor in Arts. Eight examinations have to be passed during the medical course.

Cork.

The University College, Cork, a constituent of the National University of Ireland, provides full degree courses in its Faculty of Medicine.

Galway.

The University College is a constituent of the National University of Ireland, and complete courses for degrees are obtainable in the Faculty of Medicine.

Medical Instruction.

The facilities for recognised courses of medical tuition at various universities and medical schools are briefly outlined below. The teaching institutions at which medical study may be commenced in the United Kingdom and abroad are also indicated immediately after these. The secretaries of the institutions will supply full particulars.

ABERDEEN.—The *University Faculty of Medicine*.—The complete medical course (including class, hospital, and all examination fees for five years' curriculum, and fees for degrees) costs about 150*l*. Clinical practice is obtained in the Royal Infirmary [230 beds] and other special institutions. Dean, Professor J. T. Cash, M.D., LL.D.

BELFAST.—*Queen's University of Belfast*.—Complete courses (fees about 100*l*., including clinical practice) are provided for the medical degrees of this University. Dean of the Faculty of Medicine, Professor Symmers.

BIRMINGHAM.—*University Faculty of Medicine*.—The composition-fees for the M.B. and Ch.B. degrees of the University amount to 158*l*. 2*s*. 6*d*., but the curriculum enables students to qualify for the other medical degrees and diplomas as well. Clinical instruction is obtained at the General and Queen's Hospitals [together over 500 beds]. Dean, Professor Peter Thompson, M.D., Ch.B.

BRISTOL.—The *University Faculty of Medicine*.—Complete curricula are available for the medical degrees of the University of Bristol and of the University of London, and the diplomas of the Conjoint Board and the Society of Apothecaries. Clinical practice is afforded at the Royal Infirmary and General Hospital [together 650 beds]. Composition-fee (including hospital practice), 147*l*. Dean, Professor E. Fawcett, M.D.

CAMBRIDGE.—*University Medical School*.—Apply to the Registrar of the University, Cambridge, for full particulars as to regulations and courses of study. Clinical practice is provided at Addenbrooke's Hospital [172 beds]. Inclusive expenses average about 100*l*. per academical year for an economical student.

CARDIFF.—*University College of South Wales and Monmouthshire*.—A constituent college of the University of Wales. The first three years of the medical curriculum can be taken in the Faculty of Medicine (Dean, Professor D. Hepburn,

M.D., C.M., F.R.S.). Fees for the Preliminary Scientific and the Intermediate examination of the University of London, 63*l*.; for the Conjoint Board (First and Second examinations), 41*l*. 10*s*.; D.P.H. course, 30*l*. Hospital practice is obtained at King Edward VII.'s Hospital.

CORK.—*University College*.—A constituent college of the National University of Ireland. Professor A. E. Moore, M.B., B.Ch., is Dean of the Faculty of Medicine. The degrees of the National University of Ireland or University of London cost about 125*l*., and of the Irish Conjoint Diploma 142*l*. Clinical practice is obtained at North and South Infirmaries [100 beds each], District Hospital [1,200 beds], and other local hospitals.

DUBLIN.—*Trinity College* (School of Physic).—Only matriculated students can enter the School of Physic or attend dissections; the course fees amount to 149*l*. 17*s*.

The *Royal College of Surgeons' Schools of Surgery* (which include the Carmichael and Ledwich Schools) are attached by charter to the Royal College of Surgeons, being under the supervision and control of the Council. Total expense of triple qualification (including examination-fees), 160*l*. 13*s*. A students' guide is supplied on application.

University College.—Constituent of the National University of Ireland. In the Medical Faculty (Dean, Professor E. P. McLoughlin) the fees for the four years' degree courses amount to 68*l*. 5*s*. Clinical instruction at the General Hospital and other special hospitals costs about 52*l*. 10*s*.

DUNDEE.—*University College*.—The full medical curriculum for the degree of the University of St. Andrews is available at this college, clinical instruction being given at the Dundee Royal Infirmary [400 beds].

EDINBURGH.—*University Faculty of Medicine*.—The minimum fees for the complete curriculum (including hospital practice) amount to about 130*l*. for the M.B. and Ch.B. degrees, with another 23*l*. 2*s*. for the four Professional examinations. Clinical experience is gained at the Royal Infirmary, etc. [total beds 2,160]. Dean, Professor H. Littlejohn, M.A., B.Sc.

School of Medicine of the Royal Colleges.—The courses of instruction fulfil the requirements for the medical degrees of Edinburgh University and for other medical qualifications. There are special classes for women students. The minimum cost of the triple qualification, including examination-fees, is 115*l*. Apply to the Dean, 11 Bristo Place, Edinburgh, for calendar.

School of Medicine for Women, Surgeons' Hall.—The complete medical curriculum is provided. Dean, Dr. W. Russell.

GALWAY.—*University College*.—A constituent of the National University of Ireland. The fees in the Faculty of Medicine are the same as at Cork. Clinical teaching is given at the three Galway Hospitals. The Dean is Professor J. P. Pye, M.D.

GLASGOW.—The *University Faculty of Medicine and Queen Margaret College*, Hamilton Drive, Glasgow (School of Medicine for Women). The course for the M.B. and Ch.B. degrees (including hospital attendance) costs about 140*l*. Clinical instruction is given at the Western Infirmary [600 beds] and Glasgow Royal Infirmary [600 beds]. Dean of the Faculty, Professor Noel Paton, M.D. For information regarding the women's school address Miss Melville, Mistress of Queen Margaret College.

St. Mungo's College.—Medical School of Glasgow Royal Infirmary [600 beds], at which the clinical instruction is given. The fee for English or Scottish Conjoint qualifications is about 70*l*. Dean, Professor Robert Jardine.

Western Medical School, 44 and 46 University Avenue, Hillhead.—The classes include chemistry, anatomy, surgery, medicine, midwifery and gynaecology, ophthalmology, and dermatology, some qualifying for graduation and for the diplomas of the Scottish Conjoint Board. The usual class fee is 2*l*. 2*s*. Secretary, Mr. J. N. Morton, M.A.

Anderson's College Medical School, Dumbarton Road.—The classes qualify for all the licensing bodies in the United Kingdom and the Universities (under certain conditions). Clinical instruction is given at the Western Infirmary immediately adjoining the College, and also at the Royal Infirmary. Dean, Mr. John Macintyre, M.B., C.M., F.R.S.E.

LEEDS.—The *University Faculty of Medicine*.—The complete medical curriculum costs 195*l*. 5*s*. (including composition-fee for classes 73*l*. 2*s*. 6*d*.). Clinical work is provided at the Leeds General Infirmary [520 beds]. Dean of the Medical Faculty, Professor A. S. Grünbaum, M.A., M.D., F.R.C.P.

LIVERPOOL.—The *University Faculty of Medicine*.—The composition-fees for M.B. and Ch.B. course amount to 84*l*. 15*s*. for University students, with examination-fees an extra 15*l*. Clinical instruction at the Royal Infirmary and other local hospitals [together 1,127 beds] costs 42*l*. Dean, Mr. K. W. Monsarratt, M.B., F.R.C.S.

LONDON.—The whole or part of the instruction required for the medical degrees and diplomas can be obtained at the following medical schools and colleges, which are constituents of the University of London:

Charing Cross Hospital Medical College, Chandos Street, W.C. [200 beds].—The approximate cost of medical education is given as 199l. 5s. (including composition-fee 120l. 15s., examination-fees 42l., books, and instruments fee). Clinical instruction costs 57l. 15s. Dean, Dr. William Hunter.

Guy's Hospital, London Bridge, S.E. [620 beds].—Fees, about 160l. There is a residential college in connection with the medical school. Dean, Dr. H. C. Cameron.

King's College Hospital Medical School, Lincoln's Inn, W.C.—Preliminary and Intermediate portions are taken at King's College, but composition-fee can be arranged (157l. 10s. for University course or for Conjoint course). The course for the Final examination only costs 84l. Dean, Mr. H. Willoughby Lyle, M.D., B.S., F.R.C.S.

King's College Faculty of Science (Medical Division), Strand, W.C.—Fees for the University of London courses: First examination for medical degrees 26l. 5s., Second examination 57l. 15s. The Conjoint Board course fees are: First examination 21l., Second examination 57l. 15s. Dean, Professor W. D. Halliburton, M.D., F.R.S.

London Hospital Medical College, Turner Street, Mile End, E. [922 beds]. Fees, 51l. 10s. per annum, with entrance-fee of 21l. Dean, Professor W. Wright.

London (Royal Free Hospital) School of Medicine for Women, 8 Hunter Street, Brunswick Square, W.C.—Composition-fees for the degrees of University of London or the Conjoint Board qualification, 160l.; other courses cost 140l. Clinical instruction at the Royal Free Hospital [165 beds]. Dean, Miss J. A. H. Cock, M.D.

Middlesex Hospital, Cleveland Street, W. [440 beds].—The composition-fees are: For general students, 141l. 15s.; and for University of London students, 152l. 5s. Dean, Mr. H. Campbell Thomson, M.D., F.R.C.P.

St. Bartholomew's Hospital and College, West Smithfield, E.C. [744 beds].—Fees, by a single payment, 175l. 5s., or 47l. 5s. annually for four years. Dean, Dr. T. W. Shore, B.Sc.

St. George's Hospital, Hyde Park Corner, S.W. [440 beds], with a convalescent branch at Wimbledon.—A purely clinical school, the annual composition-fee being 51l. 10s. Dean, Dr. R. Salusbury Trevor.

St. Mary's Hospital, Cambridge Place, Paddington, W. [301 beds].—Fees for full curriculum for Conjoint Board 140l., or for University degrees 145l. (5l. more if paid in instalments). Dean, Sir John Broadbent, Bart.

St. Thomas's Hospital, Albert Embankment, S.E. [620 beds].—Fees for Preliminary subjects, 15l. 15s. per annum; second-year students, entrance 21l., annual fee for all classes 31l. 10s.; fourth-year students (after second M.B.), entrance 10l. 10s.; annual fee 31l. 10s. Dean, Mr. Edward Stainer, M.A., M.D. Oxon.

University College, Faculty of Medical Sciences, Gower Street, W.C.—Fees: University of London, First medical examination course 27l. 6s.; Second examination course 60l. 13s. Composition-fees for the Conjoint Board and Society of Apothecaries' courses, 82l. 19s. for the First course. Clinical instruction is taken elsewhere (see University College Hospital Medical School).

University College Hospital Medical School, University Street, Gower Street, W.C. [305 beds].—Fees: Final M.B. course or Conjoint Board, 84l. Clinical instruction, perpetual fee, 47l. 5s. Dean, Dr. G. F. Blacker.

Westminster Hospital Medical School, Broad Sanctuary and Caxton Street, S.W. [215 beds].—Annual composition-fee, 26l. 5s. Dean, Dr. D. W. Carmalt Jones.

MANCHESTER.—*University Faculty of Medicine*.—Composition-fee for M.B. and Ch.B. degrees 73l. 10s., and Conjoint Board examinations 87l. 5s. Clinical practice at the Royal Infirmary and associated hospitals [in all 1,049 beds]; composition-fee, 42l. Dean, Professor W. Stirling.

NEWCASTLE-ON-TYNE.—*University of Durham College of Medicine*.—Clinical instruction is given at the Royal Victoria Infirmary [400 beds]. College fees, 75l. 12s.; and hospital fees, 36l. 15s.

OXFORD.—*The University*.—The instruction in natural science is carried on for the most part at the Museum, the clinical work being taken at a metropolitan or provincial medical school.

ST. ANDREWS.—*The University Faculty of Medicine*.—The full curriculum is provided at University College, Dundee, or the first two years may be taken at the United College, St. Andrews. Fees for the complete course (exclusive of examination-fees), about 140l. Clinical practice is given at Dundee Infirmary [400 beds]. Dean, Professor Kynoch.

SHEFFIELD.—*University Faculty of Medicine*.—Composition-fees: University course 80l., and hospital practice (Royal Infirmary and Royal Hospital, over 500 beds) 49l. 17s. 6d. Dean, Dr. Arthur J. Hall.

Medical study may be commenced at the following recognised teaching institutions:

Aldenham School. *Banbury Municipal School*. *Bedford Grammar School*. *Berkhamstead School*. *Birkenhead: Holt Schools of Science and Art*. *Birmingham: Municipal Technical School*, King Edward's School. *Bradford Technical College*. *Brighton Technical Day College*. *Bristol: Clifton College*, Merchant Venturers' Technical College. *Burslem: Wedgwood Institute*. *Bury Grammar School*. *Cambridge: Girton College*, Newnham College. *Cape Town: South African College*. *Cheltenham Ladies' University College*. *Clifton College*. *Croydon: Whitgift Grammar School*. *Darlington Technical College*. *Derby Technical College*. *Dublin: Royal College of Science of Ireland*. *Eastbourne College*. *Edinburgh Academy*. *Epsom College*. *Eton College*. *Exeter: Royal Albert Memorial College*. *Felsted School*. *Giggleswick School*. *Godalming: Charterhouse School*. *Gloucester Municipal Technical School*. *Grimsby Municipal College*. *Halifax Municipal Technical School*. *Harrow School*. *Hertford: Haileybury College*. *Huddersfield Technical College*. *Hull: Municipal Technical School*, Hymers College. *Johannesburg: Transvaal University College*. *Leamington Spa Municipal Technical School*. *Leicester Municipal Technical and Art School*. *London: Battersea Polytechnic Institute*, Birkbeck College, Central Technical College, Chelsea South-Western Polytechnic Institute, City of London College, City of London School, Dulwich College, East London College, Merchant Taylors' School, Royal Dental Hospital, St. Paul's School, Westfield College, West Ham Municipal Technical Institute. *Long Eaton: Trent College*. *Malvern College*. *Manchester Municipal School of Technology*. *Marlborough College*. *Mill Hill School*. *Norwich Technical Institute*. *Nottingham University College*. *Oundle School*. *Plymouth Municipal School of Science (Advanced Classes)*. *Portsmouth Municipal College*. *Preston: Harris Institute*. *Reading College*. *Repton School*. *Roehdale Municipal Technical School*. *Salford Royal Technical Institute*. *Sherborne School*. *Southampton: Hartley University College*. *Southend-on-Sea Technical School*. *Stafford County Technical School*. *Stonhurst College*. *Stourbridge: King Edward VI. School*. *Swansea Technical School*. *Swindon Technical School*. *Uppingham School*. *Walsall Municipal Institute*. *West Bromwich Municipal Secondary School*. *Wolverhampton Grammar School*.

Medical Services.

The following appointments are open to competition among candidates who are already qualified medical men. Extra instruction is afterwards required in such subjects as tropical diseases, military surgery and administration, and naval hygiene.

ARMY.—Commissions in the Royal Army Medical Corps are given to registered medical practitioners between twenty-one and twenty-eight years of age who pass an examination in medicine and surgery conducted on behalf of the War Office. Candidates are only allowed to compete twice. Payment begins with an appointment as lieutenant at 14s. per day, exclusive of allowances, and rising to 2,000l. a year, which is paid to the Director-General. A pamphlet (price 1d.) entitled "Regulations for Admission to the Royal Army Medical Corps" gives full particulars of the conditions, and can be obtained from Messrs. Wyman & Sons, Ltd., Fetter Lane, London, E.C.

INDIA.—Commissions of medical officers in the Indian Medical Service are granted on examination to registered medical practitioners between twenty-one and twenty-eight years of age, the pay to lieutenants being from 420 to 500 rupees per month, exclusive of certain extras, with a retiring allowance of from 300l. at the end of seventeen years' service to 700l. at the end of thirty years' service. Forms of application and full particulars may be obtained from the Military Secretary, India Office, London, S.W.

NAVY.—Registered medical practitioners who are British subjects and of pure European descent and not over twenty-eight years of age are eligible for commissions in the Medical Department of the Royal Navy. Applicants are examined in medicine and surgery, and on passing and receiving an appointment are paid at the rate of 255l. 10s. a year to commence, which may rise to 1,300l. a year on becoming Surgeon-General. The addition of possible allowances or equivalents brings these rates up to 469l. and 1,552l. respectively. Officers can withdraw with a gratuity on the following scale: After four years' service, 500l.; after eight years' service, 1,000l.; after twelve years' service, 1,600l.; after sixteen years' service, 2,250l. Full particulars, with details in regard to the examination, pension, etc., are given in the regulations, which may be obtained from the Director-General, Medical Department, Admiralty, London, S.W.

Many medical men before going into practice gain post-graduate experience on hospital staffs.

Dentistry.

THE practice of dentistry is regulated by the General Medical Council under the Dentists Act of 1878, and the first step in complying with the statutory requirements consists in passing the examination in general education approved by the Council (see index folio 297). Four years is the minimum period for the practical study required. Part of this is expended in apprenticeship classes and part in practice. We give in detail below the general requirements of the curriculum for the diploma of the Royal College of Surgeons of England, and this will give the student a general idea as to the conditions with which he must comply before he can obtain a registrable dental qualification. Before entering upon his course of dental study the student should first register as a dental student, as the curriculum only counts after registration has been effected.

Dental Diplomas.

THE ROYAL COLLEGE OF SURGEONS OF ENGLAND grants a diploma in dental surgery to registered dental students who pass its three examinations after complying with the necessary curriculum.

The *Preliminary Science examination* in chemistry and physics is identical with Parts I. and II. of the First examination of the Conjoint Examining Board in England. Certificates must be produced showing that the candidate has attended not less than 180 hours' instruction in laboratory work in chemistry and 120 hours' instruction in laboratory work in physics. The courses may be commenced before the Preliminary examination, and they need not be completed within a year, nor run concurrently. After October 1, 1913, the Preliminary Science examination (or its equivalent) must be passed before commencing the course of study laid down for the Second Professional examination.

First Professional examination.—The subjects are: Part I., mechanical dentistry; and Part II., dental metallurgy. The parts may be taken together or separately. Before entering for this examination evidence must be brought forward: (1) Of not less than two years' instruction in mechanical dentistry. (2) Of registration as a dental student. (3) Of having attended at a recognised dental hospital and school: (a) a course of lectures on dental metallurgy; (b) a course of practical dental metallurgy; (c) a course of lectures on dental mechanics; (d) a course of practical dental mechanics, including the manufacture and adjustment of six dentures and six crowns.

The *Second Professional examination* is in two parts: Part I., general anatomy and physiology, general pathology and surgery; Part II., dental anatomy and physiology, dental pathology and surgery, and practical dental surgery. The examination is partly written, partly practical, and partly oral. Candidates may present themselves for Part I. of the examination six months after passing their First Professional examination, or for the whole examination, and must also have certificates (1) Of having been four years in the acquirement of professional knowledge, subsequent to date of registration. (2) Of having attended at a recognised hospital and school: (a) a course of dental anatomy and physiology; (b) a separate course of dental histology, including the preparation of microscopical sections; (c) a course of dental surgery; (d) a separate course of practical dental surgery; (e) a course of not less than five lectures on the surgery of the mouth; (f) a course of dental bacteriology; (g) a course of dental materia medica; (h) a course of practical instruction in the administration of such anaesthetics as are in common use in dental surgery. (3) Of having attended at a recognised hospital the practice of dental surgery during two years. (4) Of having attended at a recognised medical school: (a) a course of lectures on anatomy; (b) a course of lectures on physiology; (c) a separate course of practical physiology; (d) a course of lectures on surgery; (e) a course of lectures on medicine. (5) Of having performed dissections at a recognised medical school during not less than twelve months. (6) Of having attended at a recognised hospital or hospitals the practice of surgery and clinical lectures on surgery for twelve months during the ordinary sessions. (7) Of being twenty-one years of age.

Certain degrees or licences in dental surgery recognised by the College admit the holder to the Second and Third examinations without passing the Preliminary Science examination. The fees payable amount to 21*l.*, half of which is for the examinations and the other half for the diploma. Complete particulars are given in the regulations relating to the diploma in dental surgery, from the Secretary, Examination Hall, 8-11 Queen Square, Bloomsbury, W.C.

THE ROYAL COLLEGE OF SURGEONS, EDINBURGH, requires every candidate for its licence in dental surgery to take two Professional examinations. The first is (1) in chemistry and physics, and (2) anatomy and physiology; and the second embraces (1) surgery and medicine, and (2) the special subjects of dental anatomy and physiology, dental surgery, and pathology, dental materia medica, dental mechanics, and dental metallurgy, with a practical written and oral examination in dental and oral surgery, pathology, and mechanics. The total fee is 15*l.* 15*s.* Besides attending an approved full course of instruction, proof has to be furnished that the candidate has undergone not less than three years' instruction in mechanical dentistry. Address all communications to Mr. D. L. Eadie, Clerk to the College, 54 George Square, Edinburgh.

THE ROYAL FACULTY OF PHYSICIANS AND SURGEONS, GLASGOW, conducts examinations which are much the same as at Edinburgh. For full particulars apply to Mr. A. Dunean, B.A., LL.D., 242 St. Vincent Street, Glasgow.

THE ROYAL COLLEGE OF SURGEONS IN IRELAND grants its diploma in dental surgery to candidates who have fulfilled its prescribed curriculum and passed its two dental examinations. The subjects at the First examination are (a) physics and chemistry, including practical chemistry and metallurgy; (b) general anatomy, physiology, and histology, and dental anatomy, physiology, and histology. The two groups may be taken together or separately. The Final Dental examination is in general pathology, medicine and surgery, dental surgery and dental pathology, with the materia medica and therapeutics applicable to dental surgery, dental mechanics and metallurgy, and orthodontia. The candidate must pass in all subjects on one occasion. Fees total 21*l.*, of which 8*l.* 8*s.* is for the diploma. Address communications to the Registrar, Royal College of Surgeons, Stephen's Green, Dublin.

University Qualifications and Instruction.

The degrees and diplomas obtainable at the various Universities are indicated below. Applications for particulars should be addressed to the Dental Department of the University.

BIRMINGHAM.—The degrees in dentistry are B.D.S. and M.D.S., and the diploma L.D.S. The B.D.S. curriculum covering five years costs 149*l.* 10*s.*, and the degree is not conferred upon any candidate who has not obtained the L.D.S.

BRISTOL.—The dental degrees are B.D.S. and M.D.S. Composition-fee for B.D.S. 199*l.* 10*s.* The L.D.S. diploma costs 174*l.* 8*s.*

DURHAM.—A licence in dental surgery is granted, for which there are four examinations; fees (including diploma) 15*l.*

LEEDS.—The dental degrees are B.Ch.D. and M.Ch.D. There is also a diploma. The approximate cost of the degree is put down at 271*l.* 14*s.* 6*d.*, and of the diploma 250*l.* 14*s.* 10*d.*

LIVERPOOL.—Degrees (B.D.S. and M.D.S.) and L.D.S. diploma. Lecture-fees for B.D.S. degree 67*l.* 10*s.*, and clinical practice 126*l.* Fees for Liverpool diploma are 58*l.* 10*s.*; other licensing bodies, 61*l.* 10*s.* Mechanical dentistry and hospital practice cost 100*l.*

LONDON.—The examination for degree of Master of Surgery in Branch II, Dental Surgery is open to graduates in medicine of this University who have spent at least three years (one subsequent to graduation) at an approved dental school, and have held an appointment at an approved dental hospital for six months. The examination-fee is 20*l.*

MANCHESTER.—Two degrees and a diploma are granted. The B.D.S. curriculum covers five years, and four examinations have to be passed. Composition-fees: B.D.S., 63*l.*; for the L.D.S., University 57*l.* 15*s.* and England 63*l.* Dental Hospital fees payable, 130*l.* (for B.D.S.) or 100*l.* (for L.D.S.).

DUBLIN.—Trinity College (University of Dublin) grants degrees of B.Dent.Sc. and M.Dent.Sc. Candidates must first graduate in Arts.

Other Dental Instruction.

The following are dental colleges and hospitals, other than the University institutions mentioned above, where the whole or part of the professional instruction, as approved by the various licensing bodies, can be obtained. The various institutions which provide approved Preliminary Scientific courses are given in the list of medical institutions (index folio 300). Intending students should write to the Dean or Secretary of the institution for full particulars.

DUBLIN.—School of Dentistry in connection with the Incorporated Dental Hospital of Ireland, Lincoln Place. Fees: 12*l.* 12*s.* for hospital practice, 6*l.* 6*s.* for dental lectures, composition-fee 15*l.* 15*s.* per annum. Particulars of mechanical pupilage on application. Dean, Mr. George Sheppard.

EDINBURGH.—Dental Hospital and School, 31 Chambers Street. Fee, 31l. 10s. for two years' hospital practice and outfit of instruments. The cost of the professional study and diploma is given as 106l. 2s. Dean, Mr. William Guy, 11 Wemyss Place.

GLASGOW.—Dental Hospital and School, 158 Renfrew Street and 15 Dalhousie Street. Dean, Mr. W. D. Anderson. Dental lectures and two years' hospital practice cost 31l. 10s.

LONDON.—*Charing Cross Hospital Dental Department*, Chandos Street, W.C.—Composition-fee (two years), 47l. 5s. Dean, Mr. William Hunter, M.D., F.R.C.P.

Guy's Hospital Dental School, London Bridge, S.E.—Complete curriculum for L.D.S. provided; composition-fee 113l. Instruction in dental mechanics costs 52l. 10s. per annum. Inclusive fee for students for L.R.C.P., M.R.C.S., and L.D.S. Eng. courses of instruction is 199l. 10s. Dean, Dr. H. C. Cameron.

King's College, Strand, W.C.—Composition-fee for L.D.S. course, 36l. 15s. Dean, Professor W. D. Halliburton, F.R.S.

London Hospital Dental School, Mile End, E.—Fees: Dental mechanics (two years), 105l.; full L.D.S. course, 210l. Dean, Professor W. Wright, F.R.C.S., D.Sc.

Middlesex Hospital, Berners Street, W.—Composition-fee, 56l. 14s. Dean, Mr. H. Campbell Thomson, M.D., F.R.C.P.

National Dental Hospital and College, Great Portland Street, W.—Fees for dental curriculum, comprising two years' mechanics and two years' hospital practice and lectures, 120l.; the fee for special lectures and hospital practice is 40l., and for mechanical training 50l. per annum. Dean, Mr. Sidney Spokes.

Royal Dental Hospital of London and London School of Dental Surgery, Leicester Square, W.C.—Instruction for

L.D.S. (in dental mechanics, two years' hospital practice and lectures) costs 150l.; or hospital practice and lectures only, 53l. 3s. The approximate cost of education for the diploma (including fees, books, and instruments) is given as 280l. 14s. Dean, Mr. W. H. Dolamore, M.R.C.S., L.R.C.P., L.D.S.

St. Bartholomew's Hospital, Smithfield, E.C.—Dean of the Dental School, Dr. T. W. Shore.

St. George's Hospital, Hyde Park Corner, S.W.—Annual composition-fee for dental students, 15l. 15s. Dean, Dr. R. Salusbury Turner.

St. Mary's Hospital, Paddington, W.—Dental course, 52l. 10s. Dean, Sir John Broadbent, Bart.

St. Thomas's Hospital, Albert Embankment, S.E.—Dean, Mr. Edward Stainer, M.A., M.D.Oxon.

University College Hospital, Gower Street, W.C.—Fee for the subjects of the dental curriculum, 68l. 5s. Dean, Dr. G. F. Blacker, F.R.C.P., F.R.C.S.

Westminster Hospital, Broad Sanctuary, S.W.—Fees for lectures and general surgical practice for R.C.S. diploma, 52l. 10s. Dean, Dr. W. Carmalt Jones.

MANCHESTER.—The Dental Hospital, Oxford Road, in association with the University of Manchester and the Royal Infirmary. Fee for whole dental hospital practice for B.D.S. degree, 130l., or L.D.S. diploma 100l. Dean, Mr. J. Hilditch Mathews.

NEWCASTLE-ON-TYNE.—Durham College of Medicine, Dental Hospital and School, Handysides Buildings, Percy Street. Composition-fee for dental lectures, demonstrations, and dental hospital practice, 43l. 1s.

SHEFFIELD.—The total minimum fees in the University Dental School for the R.C.S. diploma is given at 166l. 10s.

Veterinary Surgery.

FROM the growth of motor traction it would appear that the outlook of opportunities for practising veterinary science is on the down grade, but it must be remembered that each year sees more and more official appointments being made by various authorities in connection with meat, milk, and cattle inspection. The regulation controlling the practice of veterinary surgery is entrusted, under the Veterinary Surgeons Act of 1881, to the Royal College of Veterinary Surgeons, Red Lion Square, London, W.C. This corporate body (chartered in 1844) is the only institution in this country empowered to grant licences for the practice of veterinary surgery, and it confines itself to examining candidates for its diploma. After passing the Preliminary examination recognised by the General Medical Council (index folio 297) a four years' course at an affiliated veterinary college in London, Edinburgh, Dublin, Glasgow, or Liverpool must be entered upon, and an examination passed at the end of each year. The Final examination for the diploma cannot be taken until the candidate has attained twenty-one years of age. The following outlines of the examination indicate the subjects required for the curriculum:

First Year (Class A):

1. Anatomy of the domesticated animals.
2. Chemistry and elementary physics.
3. Biology: Elementary zoology and botany.

Second Year (Class B):

1. Anatomy of the domesticated animals.
2. Histology and physiology.
3. Stable management, the manipulation of the domesticated animals, and the principles of shoeing.

Third Year (Class C):

1. Morbid anatomy, pathology, and bacteriology.
2. Materia medica, pharmacy, therapeutics, and toxicology.
3. Veterinary hygiene and dietetics.

Fourth Year (Class D):

1. Principles and practice of veterinary medicine. Meat inspection.
2. Principles and practice of veterinary surgery and obstetrics.

The fee for each year's examination is 5l. Re-examination costs 3l. 3s. There is also a registration-fee of 1l. on passing the Final examination.

Members who have held the diploma for five years may enter for the examination for the Fellowship of the Royal College of Veterinary Surgeons. This consists of a written and practical examination in veterinary medicine and surgery, pathology and bacteriology, hygiene and sanitary science, and a thesis has to be presented and defended before the Board of Examiners.

For further particulars of the examinations of the Royal College of Veterinary Surgeons apply to Mr. Fred Bullock, Secretary, 10 Red Lion Square, London, W.C.

VETERINARY DEGREES.

The London University confers the degrees B.Sc. and D.Sc. in veterinary science. After matriculation, which allows professional studies for the M.R.C.V.S. to be commenced, intending graduates are required to study for four years, passing a Preliminary examination in inorganic chemistry and physics, an Intermediate in (i) organic and applied chemistry, biology, veterinary anatomy, and (ii) veterinary physiology, and at the end of the four years a Final examination for the B.Sc. degree in veterinary pathology and veterinary hygiene. Similar degrees are granted by the Universities of Edinburgh and Glasgow. The University of Manchester grants a diploma in veterinary State medicine, and the Liverpool University grants a diploma in veterinary hygiene.

Veterinary Instruction.

AFFILIATED COLLEGES.

The institutions below are those affiliated to the Royal College of Veterinary Surgeons at which the veterinary instruction required by candidates for the M.R.C.V.S. diploma must be obtained.

LONDON.—*Royal Veterinary College* (founded 1791; incorporated 1875), Great College Street, Camden Town, N.W.—Educational fee for the four years' course of instruction, 84l., paid in four instalments, and 2l. 12s. 6d. library fees. There are also fees for occasional students, from 3l. 3s. to 8l. 8s. per subject, and post-graduate course fee 10l. 10s. Principal and Dean, Professor Sir John McFadyean, M.B., B.Sc., M.R.C.V.S.

DUBLIN.—*Royal Veterinary College of Ireland*, Pembroke and Shelbourne Roads, Balls Bridge.—Fees, 21l. per session, with 1l. 1s. entrance-fee. Principal, Professor A. E. Mettam, B.Sc., M.R.C.V.S.

EDINBURGH.—*Royal (Dick) Veterinary College* (founded 1823).—Entrance and class fees for the complete M.R.C.V.S. curriculum amount to 72l. 9s., in four payments, with an extra fee of 5l. 5s. for each subsequent period of ten weeks. The new buildings are to cost over 50,000l. Principal, Professor O. Charnock Bradley, M.D., D.Sc., M.R.C.V.S.

GLASGOW.—*Glasgow Veterinary College* (established 1862; incorporated 1909), Buccleuch Street, Garnethill.—The fee for the complete M.R.C.V.S. course is 72l. 9s. Principal, Professor J. McCall, F.R.C.V.S.

LIVERPOOL.—The *University Veterinary School* is the only institution affording an intramural university training for the Veterinary diploma. Fees for the complete curriculum, 75l. 12s. Secretary of Veterinary Board, Mr. J. Share-Jones, M.Sc., F.R.C.V.S.

Scholarships and Prizes.

SCHOLARSHIPS and other facilities for cheaper education are being offered more freely each year, but at the same time the competition for them increases at a greater rate. The habit of gaining scholarships is one which must be acquired early in the student's career, and those who gain them are frequently more than half-way towards their ultimate goal. Scholarships and prizes in connection with various universities and local institutions are quite numerous, and well worthy of preliminary inquiry and careful study. We give brief particulars of the prizes which interest pharmaceutical students. Some are open to all students, but others are more or less limited in their application. In all cases those who wish to enter for these awards should first write for particulars in order to ascertain if they are eligible.

NATIONAL SCHOLARSHIPS.—*Local exhibitions* in science are granted, after competition, at the discretion of the local education authority. The exhibitor may pursue studies for three years at the local institution, or at the Imperial College of Science and Technology. A maintenance allowance is included in the award. *Royal Scholarships* (about twenty are offered each year) are tenable at the Imperial College of Science and Technology, or at the Royal College of Science, Dublin, and are awarded by the Board of Education after competitive examinations held in May and June. The scholarship provides free lectures and laboratory work and a maintenance allowance of 60*l.*, with third-class return fare home once each session. *The Free Studentships* in science are awarded under similar conditions to the Royal Scholarships, and total forty-five (about eleven each year). The studentship provides for free tuition at the Imperial College of Science. Particulars of Royal Scholarships and Free Studentships are contained in the Board of Education's "Regulations for Scholarships, Exhibitions, etc., in Science," price 1*d.*

THE CARNEGIE TRUST for the Universities of Scotland assists students in the payment of class fees, under certain conditions. Applicants must be over sixteen years of age, of Scottish birth or extraction, or must have given two years' attendance after the age of fourteen at a school or institution under inspection of the Scotch Education Department. They must also have obtained a Leaving Certificate of the Scotch Education Department containing evidence of such preliminary education as is required by the Universities for their respective graduating curricula. The course of study for each academic year must be approved by the University Adviser of Studies, or by the Executive Committee of the Trust. The annual allowances for new beneficiaries will not exceed in science three grants of 12*l.* and in medicine five grants of 15*l.* Communications should be addressed to the Carnegie Trust Offices, The Merchants' Hall, Edinburgh.

JACOB BELL SCHOLARSHIPS.—Two scholarships are offered annually by the Pharmaceutical Society as a memorial of Jacob Bell. The award comprises free education at the Society's School and 25*l.* in cash, with books to the value of 2*l.* 10*s.* The scholarships are open only to student-associates of the Society not less than twenty or more than twenty-two years of age who have been engaged for not less than three years in the pharmacy (*i.e.*, open shop) of a pharmaceutical chemist or a chemist and druggist. The examination is held on the third Tuesday in June, at London, Edinburgh, and Manchester. Application for admission must be made on or before June 1 to Mr. W. J. U. Woolcock, 17 Bloomsbury Square, London, W.C. The subjects of the examination are:

Latin.—Translation of "unseen" passages. Latin into English, English into Latin.

French or German.—Translation of "unseen" passages. French or German into English, English into French or German.

Chemistry, Pharmacy, and Botany.—A three-hours' paper dealing with these subjects in their relation to the British Pharmacopoeia. The questions will be based upon an elementary knowledge of the principal chemicals, drugs, and processes of the British Pharmacopoeia such as a student may reasonably be expected to have acquired during apprenticeship.

THE MANCHESTER PHARMACEUTICAL ASSOCIATION SCHOLARSHIP is open to student-associates of the Pharmaceutical Society who have been engaged for not less than three years in the pharmacy of a pharmaceutical chemist or a chemist and druggist in Lancashire, Cheshire, or the High Peak Parliamentary Division of Derbyshire. It has an annual value of about 26*l.*, which is spent in paying for school tuition. The other conditions of entry and competition are similar to those of the Bell Scholarship, except that the age limit is not less than nineteen or more than twenty-one. The winner of this scholarship may study in any provincial school of pharmacy or in the Society's school. The scholarship

frequently goes a-begging, and the trust deed is to be examined to ascertain if the accumulated interest cannot be used to increase the amount of the Scholarship.

FAIRCHILD SCHOLARSHIP AND PRIZES.—One scholarship of 50*l.* and four prizes of 5*l.* each are awarded annually by a Committee of Trustees on behalf of the donors, Messrs. Fairchild Bros. & Foster, London and New York. The awards are open to any registered student of pharmacy in the United Kingdom between the ages of twenty and twenty-two, who has fulfilled the conditions of entry for the Minor examination of the Pharmaceutical Society of Great Britain or the Licence examination of the Pharmaceutical Society of Ireland. The examination comprises written papers in elementary chemistry, elementary materia medica, practical pharmacy, prescription-reading, and elementary business knowledge. The candidate obtaining the highest aggregate number of marks is awarded the scholarship, and out of it he must pay school-fees for not less than three months at any scholastic institution he may select to enable him to prepare for the Minor examination of Great Britain or the Licence examination of Ireland. Any of the money not used in this manner is paid to the student for maintenance. The prizes of 5*l.* are awarded to the best students in England, Wales, Scotland, and Ireland. The examination syllabus can be obtained from Mr. A. E. Holden, Secretary, Albert Chambers, 64 and 65 Holborn Viaduct, London, E.C., with whom entries must be made for the next examination before June 1, 1914. The candidates may be examined at any of the following centres: Cardiff, Dublin, Edinburgh, London, and Manchester—at which the examination is held in June.

CLAYTON SCHOLARSHIP.—Students who have completed a year's part-time classes at the Northern College of Chemistry and Pharmacy, Manchester, are eligible to compete for this scholarship, which entitles the holder to free tuition at the College for four months (from September to Christmas) and to a grant of books to the value of 1*l.* Address inquiries to the Principal, Mr. E. G. Bryant, F.C.S., Ph.C., 100 and 102 Burlington Street, Manchester.

"CORNER FOR STUDENTS" PRIZES.—THE CHEMIST AND DRUGGIST founded these competitions for students in 1868, and on p. 286 yet another competitor testifies to their great utility. Exercises in qualitative chemical analyses are provided, for which two book prizes are offered monthly. A tournament is conducted throughout the winter session, the marks each month being registered, and the three competitors who receive the highest number are awarded parchment certificates and book prizes to the value of 2*l.* 2*s.*, 1*l.* 1*s.*, and 10*s.* 6*d.* Prizes are also awarded to any student whom the conductor of the "Corner" (Dr. Leonard Dobbin) judges to have made meritorious progress.

HERBARIUM PRIZES.—The Pharmaceutical Society of Great Britain offers annually to its student-associates a silver medal, a bronze medal, and certificates of honour for a herbarium of British plants collected in any part of the United Kingdom, the Channel Islands, or the Isle of Man between January 1 in one year and July 1 in the year following. The collection must not exceed 150 specimens, which must be selected and mounted to display the characteristic features of the more prominent and typical genera of the chief British natural orders. Particulars can be obtained from Mr. W. J. U. Woolcock, 17 Bloomsbury Square, London, W.C.

THE ABERDEEN PHARMACEUTICAL ASSOCIATION offers for competition, open to students attending the evening classes of The School of Pharmacy, Robert Gordon's Technical College, two prizes in each of the subjects taught during the session. Address the Secretary, Mr. W. F. Hay, 476 Union Street, Aberdeen.

BOWMAN PRIZES.—Six book prizes, of an aggregate value of 10*l.*, presented by Mr. W. P. Bowman, are offered annually by the Leeds Chemists' Association. The questions are in chemistry and pharmacy, and are in two sets—one for juniors and the other for seniors. Entry must be made before March. The syllabus is obtainable from Mr. H. Gilleghan, 128 Roundhay Road, Leeds.

THE EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' Association offers four prizes, value 1*l.* 1*s.*, for competition among its members only. For particulars of the examinations apply to the Secretary, Mr. David Grieve, 243 Leith Walk, Edinburgh.

Post-Graduate Awards.

We give below the prizes awarded subsequent to the qualifying examination.

THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN offers annually three medals for competition by pharmaceutical chemists who have passed the Major examination during the year. The examination is in materia medica, botany,

and chemistry, and is held shortly after the Major examination in April. The Registrar communicates with each person entitled to compete, advising him of the matter. The first prize is the Pereira Silver Medal and 5*l.* worth of books; second, the Society's Silver Medal; third, the Society's Bronze Medal.

The Society also has in its gift the following scholarships:

The Redwood Scholarship, of the value of about 60*l.* in cash, which is awarded every second year to a pharmaceutical chemist, and enables him to work in the Society's research laboratory.

The Burroughs Scholarship of about 50*l.* is a similar award every second year.

The Salters' Research Fellowship in chemistry, of the annual value of 100*l.*, is awarded by the Salters' Company on the Society's nomination for a similar purpose.

THE PHARMACEUTICAL SOCIETY OF IRELAND.—The Council awards annually a gold and silver medal to pharmaceutical chemists who have during the year passed the Licence examination and obtained the following standard of marks: For the gold medal, not less than 240 marks out of 300, and sixty-five in each of the three subjects; for the silver medal, 230 marks out of 300, and sixty in each of the three subjects.

THE CHARLES JAMES HEWLETT MEMORIAL EXHIBITION is awarded on the recommendation of the Professors of the Pharmaceutical Society's School to the student (other than a Bell scholar) who most distinguishes himself during attendance at the elementary course. The exhibition is about 15*l.* in value, and it pays the fees of the successful candidate for the ensuing advanced or Major course.

THE KINNINMONT PRIZE, awarded annually, is open to pharmacists residing in Glasgow and the West of Scotland who have passed the Minor at any time from April two years preceding the date of examination. The examination, which is in botany and elementary physics, is held in Glasgow in June. The Hon. Secretary is Mr. W. L. Currie, 223 Byres Road, Dowanhill, Glasgow.

DISPENSERS' APPOINTMENTS.

METROPOLITAN ASYLUMS BOARD.—The salary paid by the Board for the post of dispenser is 120*l.* per annum, rising, after four years' service, by annual increments of 7*l.* 10*s.* to 180*l.* per annum. The Clerk to the Board informs us that the Order of the Local Government Board in reference to these appointments states: "No person shall be qualified to be appointed a dispenser unless he shall be a Licentiate of the Apothecaries' Company of London, or shall have been duly registered under the Pharmacy Act, 1868, or any other authority of law in that behalf." Accordingly, Minor and Major qualifications of the Pharmaceutical Society and the L.S.A. diploma (full medical qualification) are accepted; the holders of the apothecaries' assistants' certificate not being eligible.

BOARDS OF GUARDIANS.—Poor-law dispenserships under the Local Government Board of England are open to those who hold certificates as Licentiates of the Society of Apothecaries, London; apothecaries' assistants (under the English Act); Army compounders; chemists and druggists (G.B.), or pharmaceutical chemists (Ireland). Salaries begin at 120*l.*, and can be increased by 20*l.* after four years, and then by biennial increments of 10*l.* until a maximum of 180*l.* a year (or under exceptional circumstances 200*l.*) is reached in the metropolitan area. In the provinces there is no fixed limit, the salary being fixed and varied by the Guardians of each Union, with the sanction of the Local Government Board. Dispensers receive pensions on retirement through age or ill-health, a deduction from the salaries being made in respect to this arrangement.

NAVAL HOSPITALS.—There are nineteen berths for dispensers at home and abroad, as follows: Haslar, six (including supernumerary appointment); Plymouth, four; Chatham, four; Haulbowline, Malta, Gibraltar, Hong-Kong, and Portland, one each. Candidates for vacancies must be chemists and druggists or pharmaceutical chemists, and not more than twenty-eight years old. The pay commences at 110*l.* per annum, with biennial increments of 5*l.* until 130*l.*, then by 10*l.* every two years to 230*l.* Additional allowances of from 20*l.* to 40*l.* a year are made to dispensers in charge of stores; 20*l.* is also allowed to the dispensers instructing the Sick-berth Staff at Haslar, Plymouth, and Chatham. Free quarters are provided, and allowances made to those serving on foreign stations to meet the increased cost of living. Pensions are granted on retiring. Entry into the Service is by examination, conducted by the Civil Service Commissioners, but the candidates are first selected by the Medical Department of the Navy, Admiralty, S.W., to the Director-General of which Department applications respecting vacancies and nominations should be addressed.

ARMY DISPENSERS are non-commissioned officers in the Royal Army Medical Corps. They are enlisted in the usual way, with the additional requirement of passing a test in reading and of general intelligence, as well as certification as

suitable for the Corps. Before being permitted to undergo training as a dispenser, the soldier must possess at least a second-class certificate and have passed the examination for promotion to corporal in the Royal Army Medical Corps. The training in the dispensary of the military hospital extends over nine months, and includes hospital and nursing duties. Part A includes training in all the subjects scheduled in the Standing Orders, and after examination in the first four of these, the successful candidate proceeds to Part B, in which a course (of at least three months) is given at small classes in selected hospitals. The holder of the Minor certificate has to pass an examination in the subjects appertaining to the equipment and medical stores for the dispensary. The Corps contains about 800 men who have passed the Army Compounders' examination, most of whom are of sergeants' rank and upwards.

PRISON SERVICE.—The regulations for pharmacists in English and Welsh prisons admit applicants between the ages of twenty-four and thirty-five years, inclusive. Candidates must hold a qualification of the Pharmaceutical Society of Great Britain, and must satisfy the Civil Service Commissioners as to their abilities in reading, writing, orthography, and arithmetic. The duties consist of dispensing medicines, assisting in keeping medical records, keeping medical and surgical instruments in order, assisting in the performance of surgical operations, doing the duties of hospital warder when necessary, and keeping the dispensary and its stores. The scale of remuneration is 105*l.* per annum, rising by 2*l.* per annum to 125*l.*, then by 5*l.* per annum to 150*l.*, with quarters, or 19*l.* 10*s.* per annum in lieu thereof. An allowance of 5*l.* 4*s.* per annum is also granted in lieu of uniform. Pensions are granted on retiring. The photographic work in connection with the prison also frequently falls to the lot of the pharmacist, for which extra remuneration is allowed. An application-form for appointment to the subordinate staff in the prison service has first to be obtained from the Secretary of the Civil Service Commission, Burlington Gardens, London, W.

BOOKS FOR THE STUDENT.

BOTANY.

For Beginners: Farmer's "Practical Introduction to the Study of Botany" (Longmans), 2*s.* 6*d.*; J. W. Oliver's (Birmingham) "Elementary Botany" (Blackie), 2*s.*; Edmonds' "Elementary Botany" (Longmans), 2*s.* 6*d.*; Buckley's "Botanical Tables for the Use of Junior Students" (Macmillan), 1*s.* 6*d.*, and Holmes's "Botanical Note-book" (Christy), 3*s.*

For Minor Students: Lowson's "Text-book of Botany" (Clive), 6*s.* 6*d.*; Scott's "Introduction to Structural Botany," Part 1 (Flowering Plants), 3*s.* 6*d.*; Johnson's "Text-book of Botany" (Allman), 7*s.* 6*d.*

For Major Students: Scott's "Introduction to Structural Botany," Part 2 (Flowerless Plants) (Black), 3*s.* 6*d.*; Green's "Manual of Botany," Vol. I, Morphology and Anatomy, Vol. II, Classification and Physiology (Churchill), 7*s.* 6*d.* and 10*s.*; Strasburger's "Text-book of Botany" (Macmillan), 18*s.*; Benthall and Hooker's "Handbook of British Flora" (Reeve), 10*s.*; Willis's "Flowering-plants and Ferns" (Cambridge Press), 2 vols., 10*s.* 6*d.*

Physiology: Green's "Soluble Ferments and Fermentation" (Cambridge Press), 10*s.* 6*d.*, and "Introduction to Physiology" (Churchill), 10*s.* 6*d.*

Field Botany: Hayward's "Botanist's Pocket-book" (Bell), 4*s.* 6*d.*

Practical Work: Bower and Gwynne-Vaughan's "Practical Botany for Beginners" (Macmillan), 3*s.* 6*d.*

CHEMISTRY.

For Minor Students: Attfield's "Chemistry" (Gurney & Jackson), 15*s.*; and Newth's "Inorganic Chemistry" (Longmans), 6*s.* 6*d.*; Perkin and Kipping's "Organic Chemistry" (Chambers), 7*s.* 6*d.*; Cohen's "Theoretical Organic Chemistry" (Macmillan), 6*s.*

For Advanced Students: Bloxam's "Chemistry, Inorganic and Organic" (Churchill), 18*s.*; Stewart's "Recent Advances in Organic Chemistry" (Longmans), 7*s.* 6*d.*; Berthsen's "Organic Chemistry" (Blackie), 7*s.* 6*d.*, and Keane's "Modern Organic Chemistry" (Scott), 6*s.*

Standard Reference Works: "Chemistry of the Carbon Compounds" (Kegan Paul), Vol. I, Aliphatic Series, 14*s.*, Vol. II, Hetero- and Carbo-cyclic Series, 15*s.*; Thorpe's "Dictionary of Applied Chemistry" (Longmans), 4 vols. published of new edition, each 4*s.*

Practical Organic Work: Cohen's "Practical Organic Chemistry for Advanced Students" (Macmillan), 3*s.* 6*d.*; Sudborough and James's "Practical Organic Chemistry" (Blackie), 5*s.*

Physical Chemistry: Walker's "Introduction to Physical Chemistry" (Macmillan), 10*s.*; Senter's "Outlines of Physical Chemistry" (Methuen), 3*s.* 6*d.*

Qualitative Analysis.—Muter's "Analytical Chemistry" (Baillière), 6*s.* 6*d.*; Newth's "Practical Chemistry" (Long-

mans), 2s. 6d., F. Mollwo Perkin's "Qualitative Chemical Analysis" (Organic and Inorganic) (Longmans), 4s., Clowes and Coleman's "Elementary Practical Chemistry," Part II., Analytical Chemistry (Churchill), 3s. 6d.

Organic Analysis: Weston's "Scheme for the Detection of the more Common Classes of Carbon Compounds" (Longmans), 2s. 6d., Allen's "Commercial Organic Analysis," 3 vols. (Churchill), 21s. each.

Quantitative Analysis: Clowes and Coleman's "Quantitative Chemical Analysis" (Churchill), 10s. 6d.

Volumetric Analysis: Hampshire's "Volumetric Analysis" (Churchill), 3s. 6d., Sutton's "Systematic Handbook of Volumetric Analysis" (Churchill), 21s. net.

Pharmaceutical Testing and Urine-analysis: Proctor's "Pharmaceutical Testing" (C. & D. Office), 2s. 6d., and "Practical Methods of Urine-analysis" (C. & D. Office), 2s. 6d.

LATIN AND PRESCRIPTION-READING.

Ince's "Latin Grammar of Pharmacy" (Baillière), 5s., Bennett's "Medical and Pharmaceutical Latin for Students of Pharmacy and Medicine" (Churchill), 6s.

MATERIA MEDICA.

Text-books: Greenish's "Introduction to Materia Medica" (Churchill), 15s., Southall's "Organic Materia Medica" (Churchill), 7s. 6d., and Humphrey's "Materia Medica" (Kimpton), 6s. 6d.

Historical: Fluekiger and Hanbury's "Pharmacographia" (Macmillan), 21s.

For Practical Microscopical Work: Greenish's "Microscopic Examination of Food and Drugs" (Churchill), 12s. 6d., and Kraemer's "Botany and Pharmacognosy" (Lippincott), 21s.

PHARMACY.

B. P. Study: British Pharmacopoeia, 1898 (Spottiswoode), 10s. 6d., White and Humphrey's "Pharmacopoeia" (Simpkin, Marshall), 12s. 6d.

Practical Pharmacy: Ince's "Elementary Dispensing Practice" (C. & D. Office), 3s. 6d., "The Art of Dispensing" (C. & D. Office), 6s., Lucas's "Practical Pharmacy" (Churchill), 12s. 6d.

PHYSICS.

Glazebrook's "Heat and Light" (Cambridge Press), 5s., Professor S. P. Thompson's "Electricity and Magnetism" (Macmillan), 4s. 6d., Edser's "Heat for Advanced Students" (Macmillan), 4s. 6d., Stewart's "Light" and "Heat" (Clive), 4s. 6d. and 6s. 6d. respectively, Ganot's "Physics" (Longmans), 15s.

OTHER BOOKS.

Dobbin's "Arithmetical Exercises in Chemistry" (Thin), 1s., for exercise in calculations, Martindale's "Extra Pharmacopoeia" (Lewis), 21s., in 2 vols., Squire's "Companion" to the British Pharmacopoeia (Churchill), 12s. 6d. to students, "The C. & D. Dose Tables for Pharmacy Students" (C. & D. Office), 3d., Gadd's "Synopsis of the British Pharmacopoeia" (Baillière), 1s., "Poisons and Pharmacy Act, 1908" (Baillière), 1s.

The Jacob Bell Scholarship.

Mr. C. J. Eastland, of Margate, Senior Bell Scholar, 1913, tells how he studied for and won the Jacob Bell Scholarship.

I WAS APPRENTICED in September 1908 to my father, and after serving my time remained with him as "junior."



MR. C. J. EASTLAND

Upon starting my apprenticeship I determined to work for the Bell and Fairchild Scholarships, and, believing practical work to be essential for the intelligent acquirement of the necessary knowledge, I fitted up a laboratory, where I did my best to elucidate the mysteries of the packets supplied by the C. & D. and the "Journal." In addition to analysis, I made a materia-medica collection with the help of our wholesale drug-house, and the specimens were carefully compared with the text-book descriptions. Half-holidays during the spring and early summer were spent in becoming familiar with the flora of the district.

Most of my study was done after eight o'clock (from one o'clock on early-closing days) during the autumn and winter months, as, Margate being a

season place, there is little opportunity for work during the summer. In order to improve in Latin and French, I entered upon a course of postal tuition with Mr. Daves, and to his criticisms and system I owe much. During the last three or four months I worked through the papers set at previous examinations, thus obtaining a good idea of the kind of knowledge required and the type of questions set. My holiday, which came about three weeks before the examination, was spent in revision of all subjects, and this resulted in a feeling of confidence and readiness for the "fray." White and Humphrey's "Pharmacopoeia" I found a most valuable companion, giving as it does the reasons "why" of the various methods adopted in preparing the official preparations and of the tests for their purity. Perseverance, I think, is the secret of success.

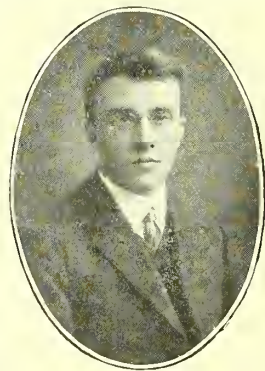
The Fairchild Scholarship.

Mr. Bertram Baker, Fairchild Scholar, 1913, gives the following account of the method he adopted to win the Scholarship.

ALWAYS REGARDING system as one of the essentials for success, immediately after commencing my apprenticeship I started a systematic course of study, which embraced all the subjects required for the

Minor examination. I endeavoured to spend a few hours each night at study, taking one subject each night.

The practical side of the examination was by no means forgotten, and on half-days, as well as one night each week, I attended classes in practical pharmacy, practical chemistry, and dispensing, held by Mr. E. Griffiths, of Kidsgrove, Staffs. The knowledge gained at these classes was most beneficial for the Scholarship examination, as several questions were given which tested a candidate's knowledge of practical work. After serving my apprenticeship and leaving home, I took up residence in a town where, unfortunately,



MR. BERTRAM BAKER.

tuition in science is not easily obtainable; but, determined not to drop my studies on that account, I entered upon a correspondence course with Mr. Daves, Chancery Lane, London, from September 1912 to June 1913. During this period the whole of the work required for the Fairchild was covered, and as much knowledge on each subject as possible was assimilated, because I came to the conclusion in the early days of my studies that religiously adhering to a syllabus is detrimental to any examination success, and particularly so if the examination be a competitive one. I strongly advocate a course of postal tuition for the Fairchild, as it is an excellent method of learning how to give the information required in a concise manner. During this period of ten months I spent three hours each night at study, but made a rule of having my half-day a week free, and spent it usually in long country tramps, so that my health was not impaired by continuous study. During my daily work, any difficulty or fresh point which arose was noted down, and looked up in works of reference each night, and by following out this method much useful knowledge was gained. The "parrot work" of the examination, such as doses, strengths, etc., was assimilated in odd moments. The two things necessary for success, in my opinion, are: (1) An efficient tutor, (2) persistent and diligent study.

ANALYSTS' APPOINTMENTS.—Those under the Sale of Food and Drugs Acts, or under the Fertilisers and Feeding-stuffs Act, are made by local authorities or County Councils, subject to the approval of the Local Government Board. This latter provision practically means holding the qualification of the Institute of Chemistry. The Government Laboratory appoints its second-class analysts from candidates (age-limit twenty to thirty) selected by the principal chemist ordinarily after competition. The War Office has instituted in recent years an examination for Class III. chemists (age-limit twenty to twenty-five), but no new appointment has been made since 1900. There are also positions at the Admiralty which employs chemists as inspectors of victualling-stores. The Patent Office appoints examiners of patents, some of whom need to be chemists.

TRADE REPORT.

The prices given in this section are those obtained by importers or manufacturers for bulk quantities or original packages. To these prices various charges have to be added, whereby values are in many instances greatly augmented before wholesale dealers receive the goods into stock, after which much expense may be incurred in garbling and the like. Qualities of chemicals, drugs, oils, and many other commodities vary greatly, and higher prices than those here quoted are charged for selected qualities of natural products even in bulk quantities. Retail buyers cannot, therefore, for these and other reasons, expect to purchase at the prices quoted here.

42 Cannon Street, London, E.C., August 14.

BUSINESS has been fully resumed on the markets this week, but, as is usual during August, transactions are within a limited compass, especially in drugs, an auction of which will be held next week. Holidays in the North also account for a quiet feeling in chemicals. In Mincing Lane produce, shellac has shown a sharp advance, due to speculation and higher prices in Calcutta. Quinine is firmer with a fair business from second-hands; on the other hand, opium continues its easier feeling on the abstention of buyers. Strychnine is cheaper, competition among makers being severe. Cream of tartar is firmer, makers asking an advance for forward delivery, and citric acid is firmer in second-hands. Carbolic acid and copper sulphate are firmer, and arsenic is lower. In outside articles glucose and starches have slightly advanced; turpentine has been firm throughout, closing higher. The chief alterations have been as follows:

Higher	Firmer	Easier	Lower
Benzols Glucose Shellac Starches Turpentine	Ammonia sulphate Carbolic acid Citric acid Copper sulphate Cream of tartar Quinine (sec. hands)	Cloves Opium	Arsenic Lemon oil Lobelia Orange oil (Sicil.) Strychnine

Cablegram.

NEW YORK, August 14.—Business in drugs is fair. Opium is steady at \$5.70 per lb. for druggists' in original cases. Peppermint oil has advanced to \$3.25 in tins, and hydrastis (golden seal) is also dearer at \$4. Senega is steady at 70c., and cascara sagrada is quiet at 7½c. Curaçao aloes is steady at 7½c. Copaiba has declined to 44c. per lb. for Central and South American, and Para description to 48c. Jalap is quoted at 18c. and round buchu at \$1.35 per lb.

London Markets.

ALMONDS.—Exports from Sicily have, it is said, become quite impossible owing to the high prices. It is true that this year's crop is a failure; but the extreme prices are (says a Palermo advice) principally due to speculation; prices for September-October shipment vary from 130s. to 160s. per cwt. f.o.b., according to description and quality.

ARROWROOT.—At auction 168 barrels St. Vincent were bought in at from 2¾d. to 3¼d. for fair to good manufacturing.

ARSENIC is cheaper, best white English powder offering in ton-lots at 15l. 10s. per ton in barrels and 16l. 10s. in kegs.

BALSAMS.—Maranham unfiltered *Copaiba* in casks is quoted 2s. 3d. *Canada* balsam is scarce at 7s. 6d. per lb. net in tins on spot, and for *Tolu* 3s. 3d. to 3s. 4d. per lb. e.i.f. is quoted, spot offering at 3s. 5d. net. *Peru* is offered at 7s. 9d. spot.

BENZOLS are ½d. to 1d. per gal. dearer, 50 per cent. prompt offering at 11d. to 11½d. per gal. naked, and 90 per cent. prompt at 1s. 1d. London.

BERGAMOT OIL remains quiet, the spot value of good brands being about 25s., and to arrive 23s. 6d. to 25s. 9d. per lb. c.i.f. is quoted for 37 to 39-per-cent. esters.

A Catania report dated August 9 states that there has been a small boom, a large holder in Calabria being supposed to have rigged the market; this upward movement was probably helped by the purchases of exporters, who were short. The advance aggregates about 15 to 17 per cent. from the lowest point in June. Holders remain firm, but export demand continues slack, and it is doubtful if the movement will last. Prospects for the new crop remain favourable, and a somewhat larger yield than last year is expected, but there is still the risk of damage. Sellers for future delivery are also holding back; on the other hand, buyers remain indifferent, believing in lower prices later.

BUCHU.—The *Norman* has brought 21 packages from Cape Town.

CARBOLIC ACID.—Owing to the advance in crude, the price of B.P. crystals (39° to 40° C.) is firmer at about 5d. per lb. in large bulk packing.

CHIRETTA is obtainable at 3¾d. per lb. on spot; the supply continues plentiful.

CINCHONA.—The auction to be held at Amsterdam on August 28 will consist of 1,112 bales and 516 cases, 104,077 kilos. pharmaceutical bark, of which 99,167 kilos. are *Succirubra*, 4,250 kilos. *Robusta*, and 660 kilos. hybrid. The stock in first hands at Amsterdam consisted on August 7 of 10,448 packages Government and 44,633 packages of private bark.

CITRIC ACID is difficult to obtain, several second-hand holders asking 1s. 10¾d. The makers' price is nominal at 2s., they not being sellers.

A Palermo exporter, writing in his circular about eitate of lime and concentrated lemon-juice, states that export firms protest against the Camera Agrumaria not allowing them to export. He maintains that makers of citric acid abroad are certainly better off in buying from exporters, as they take upon themselves every responsibility and exercise a rigorous control over the quality. He instances a case in which 26 tons of eitate, received by an exporter from the Camera Agrumaria, was alleged to be cleverly adulterated with 25 to 30 per cent. of quicklime, of which acceptance was refused.

CITRONELLA OIL.—Ceylon in drums is steady on spot at from 1s. 9½d. to 1s. 10d., and for September-October shipment 1s. 6½d. c.i.f. is quoted.

CLOVES.—Quiet. The spot price for fair Zanzibar has fluctuated between 9d. and 9½d., closing at the latter price. Delivery market is rather dearer, with buyers of June-August at 9¾d. and sellers at 9¾d. The sales for shipment include November-January at 6d. to 6½d. c.i.f. d/v.

COCA-LEAVES.—At the Amsterdam auction to be held on August 28, 1,842 packages, weighing 96,105 kilos., will be offered.

COD-LIVER OIL.—Our Bergen correspondent, writing on August 11, reports a continued quiet market, the quotation for prime non-congealing Lofoten oil being about 98s. 6d. per barrel c.i.f. The total exports from Norway to the end of July amount to 21,074 barrels against 25,885 barrels at the corresponding period of last year.

COPPER SULPHATE.—Although quiet, prices of the usual Liverpool brands are 5s. to 10s. per ton better, prompt offering at 22l. 10s. to 22l. 12s. 6d., and January-March at 22l. 15s.

CREAM OF TARTAR.—The fact that French and German makers have advanced their prices for forward delivery has given a firmer market tone. Prices for prompt delivery are unchanged, however, at 89s. for 98-per-cent. and 87s. for 95-per-cent. powder.

GINGER.—At auction 105 bags Calicut were bought in at 31s. for bold and medium brown, and at 32s. for good washed D. Privately, sellers of rough Japan quote 19s. 6d. c.i.f.

GLUCOSE has advanced to 12s. 9d. per cwt. spot for the usual brands; powdered starch is also dearer at 11s. 9d., and *pearl* at 11s. 6d. ex wharf London.

GRINDELIA ROBUSTA is quoted at from 4*d.* to 5*d.* per lb. c.i.f., according to seller.

HONEY.—Business has been done in Liverpool at 34*s.* per cwt. for Chilian pile X.

IPECACUANHA.—The *Avon* has brought 12 packages Matto Grosso from Monte Video.

LAVENDER OIL.—With a French crop estimated at one-third only of an average, the prices of finest quality, which were recently selling at about 15*s.*, are now quoted at 18*s.* to 19*s.* Spike lavender and thyme have also yielded small crops this season, and high prices are anticipated.

LEMON OIL is cheaper on the spot, sales in several directions of good brands having been made at 17*s.* per lb. For prompt shipment from 16*s.* 6*d.* to 17*s.* c.i.f. is quoted, and new crop at from 11*s.* to 11*s.* 6*d.* c.i.f.

It is reported from Sicily that those speculators who sold for forward delivery at cheap prices now show a desire to cover their sales, but, as makers have had to pay very high prices for the fresh fruit, these offers cannot be accepted. The future of the market will depend largely upon the demand for lemons in cases during November and December.

A Catania report dated August 9 states that the value of prompt oil is now about 12½ per cent. below the highest point of the season. The reasons cited are: the limited export demand, the wish of small holders to realise profits in order to obtain funds to pay for new lemons, and, finally, favourable crop prospects. The stock of lemon oil in Sicily is now estimated at about 70,000 Eng. lb., and in view of this comparatively small supply it is possible that, with a more active demand, an upward movement may set in. As regards new crop, the June blossoming has terminated favourably, and the present estimate is that the crop will be one-third larger than last year. Prices for future delivery have declined about 10 per cent. from their highest point and remain stationary; market is quiet. New-crop lemons continue to be bought up at high prices. Wages have risen, and the financial condition of owners of lemon-orchards and of essential-oil makers is good. A material decline in prices therefore seems improbable.

LOBELIA of new crop is offered at the cheaper figure of 6*d.* per lb. c.i.f.

MACE.—Steady, 16 packages West Indian in auction selling at 1*s.* 11*d.* to 2*s.* 1*d.* for fair to good reddish, 1*s.* 9*d.* to 1*s.* 10*d.* for dark red, and 1*s.* 6*d.* to 1*s.* 7*d.* for broken.

MENTHOL.—Quiet at 20*s.* to 20*s.* 3*d.* per lb. spot for Kobayashi; for September-October shipment sellers of Kobayashi crystals with equal quantity of oil quote 22*s.* 9*d.* c.i.f.

MILK-SUGAR.—For prompt delivery German and Dutch brands are quoted at 55*s.* per cwt. from the makers, but for forward delivery no quotations are available, all orders having to be submitted.

MORPHINE.—With makers unable to guarantee prompt delivery, previous prices are maintained at from 9*s.* to 9*s.* 1*d.* per oz. for hydrochloride powder from second-hands; cubes are scarce, being quoted at 9*s.* 4*d.*

NUTMEGS.—At auction 132 packages West Indian sold steadily, including 147 to 92 to the lb. 4¾*d.* to 5*d.*, 70*s.* at 5*d.*, slightly wormy 4½*d.* to 4¾*d.*, wormy and broken 3¾*d.* to 4*d.*

NUX VOMICA.—A fair quantity of good Bombay has been sold at 10*s.* 6*d.* per cwt. c.i.f. terms, the value of this description on spot being 11*s.* 6*d.* landed. New crop is not yet offered.

OLIVE OIL.—A Palermo advice reports business as limited, prices having been too high. Italian consumers absorb the whole production, and the stocks are quite insignificant. The new crop, which promised well both in Sicily and Calabria, has suffered a reverse on account of the large quantities of small olives falling from the trees, added to which the "olive fly" has made its appearance.

OPUM.—Buyers for the moment appear to be adopting a waiting policy, and this lack of support on primary markets by American and European buyers has again induced an easier feeling. The last quotation of 14*s.* c.i.f. for the usual 11-per-cent. quality is therefore somewhat nominal, and a firm order at slightly less

would probably lead to business. Should buying, however, be resumed on an important scale it would not be surprising to see prices 1*s.* dearer again. The spot value of good Smyrna druggists' is from 17*s.* 6*d.* to 18*s.* Persian remains very firm with a good inquiry for the East, with nothing obtainable under 20*s.* to 21*s.* With the restricted Indian output for China more Persian must be required for this market.

A Smyrna correspondent writes on August 1 that the sales this week amount to 140 cases at from 13*s.* 6*d.* to 16*s.* 6*d.* as to quality and morphine strength. Market closes steady with buyers, so if sellers do not raise again their pretensions we expect to see further extensive purchases next week. The arrivals amount to 1,769 cases, against 784 at same date last year.

A Constantinople correspondent writes on August 9 that the sales amount to 104 cases druggists' at 220 p*tr.*s. to 210 p*tr.*s., 13 cases "soft" at 240 p*tr.*s. to 235 p*tr.*s., and 14 cases Malatia at 250 p*tr.*s. The cessation of buying for American account has given an easier tendency to the market. The arrivals in Constantinople amount to 872 cases, against 617 cases, of which 654 are druggists' and 215 "soft"; the stock is 598 cases, against 542 cases, and consists of 412 druggists', 172 "soft," and 14 Malatia.

ORANGE OIL.—A Catania advice dated August 9 states that there is no demand for prompt delivery, and prices are lower. As regards new crop, it is reported from Calabria that production there will be small, as the orange-trees were injured by frost last winter; in Sicily a normal production is looked for. There is little offering for future delivery, and the tendency of prices is firm. Stocks of *bitter* for prompt shipment are cleared; the new crop will be small and sellers few.

OTTO OF ROSE.—With the conclusion of peace in the Balkan States, communication with the various commercial centres is rapidly being restored again. New otto will shortly be available in fair quantities, and supplies are now being sent forward to the European capitals. Meanwhile the demand has been supplied from spot stocks of previous crops.

PEPPER.—Privately, spotsellers of fair Singapore *Black* quote 5¾*d.*, and for August-October shipment 4¾*d.* c.i.f. is quoted; sales of Lampong have been made at 4¾*d.* c.i.f. for October-December. At auction 25 bags fair lined Penang were bought in at 8¾*d.*; privately, sellers of fair *White* Singapore quote 8¾*d.* and fair Muntok 9½*d.* September-October shipment of Singapore is quoted 8¾*d.* c.i.f.; all markets are quiet.

PEPPERMINT OIL.—With extreme scarcity of good brands of American tin oil on spot, business is confined to quite retail lots at from 14*s.* 6*d.* to 14*s.* 9*d.* per lb. H.G.H. remains at 15*s.* 6*d.* London terms. Agents are still without offers of the new crop. Japanese dementholised is quoted at 5*s.* 4*d.* on spot for Kobayashi, and for November-December shipment 5*s.* 5*d.* c.i.f. has been paid.

PODOPHYLLUM-ROOT.—To arrive 34*s.* per cwt. c.i.f. is quoted, or 35*s.* spot.

QUILLATA.—The small supplies available in Liverpool are held for 30*l.* per ton ex store.

QUININE is firmer, with a fair speculative business in the usual German brands at from 10¾*d.* to 11½*d.*, and December delivery at 11¾*d.* to 11½*d.* To-day the market closes with buyers at 11*d.*; there are few sellers. The makers' price is 11½*d.*

The exports of "quinine, quinine salts, and combinations" from Germany during the five months ending May were as follows:

	1911	1912	1913
Kilos. ...	81,600	97,400	94,900
Marks ...	1,978,000	2,332,000	2,508,000

ROSE PETALS.—Red French are offered at 3*s.* 5*d.* per lb.

SENEGAL.—New crop for September-October shipment is offered at 2*s.* 11*d.* to 3*s.* net, and on the spot 3*s.* 9*d.* net is quoted, there being very little here.

SENNA.—The arrivals comprise 208 bales Tinnevely, which may possibly be new crop, and will be offered next week.

SHELLAC has been a strong and much dearer market, spot prices of TN having advanced over 5*s.* per cwt., with a moderate business at up to 100*s.* to 101*s.* for fair

standard quality. A. C. Garnet is quoted 91s. and G. A. L. 85s. For August-September shipment business has been done in TN at 99s. and October-November at 100s. to 101s. c.i.f. Futures have been active, several thousand cases having changed hands at a substantial advance, including August at 96s. to 101s., October 97s. to 103s. 6d., December 99s. to 106s., and March 107s. to 108s. The Calcutta price has advanced to 51 rs. buyers of TN Orange as compared with 48 rs. last Friday.

STRYCHNINE.—Active competition among makers has rendered the so-called "official" quotations nominal, and prices are fully 2d. per oz. lower. For fair average wholesale quantities for the home trade 1s. 10d. per oz. is about the value of pure crystals.

TONKA BEANS.—Angostura for July-August shipment are offered at 5s. 6d. per lb. c.i.f., and dry frosted Paras at 6s. spot.

TURPENTINE, after being steady throughout at 28s. per cwt. for American on spot, closes firmer at 28s. 3d.

WAX, BEES'.—At auction in Liverpool 21 blocks Conakry sold at 7l. 6s. 3d. per cwt. and 57 packages Sierra Leone at from 7l. 6s. 3d. to 7l. 7s. 6d.

Heavy Chemicals.

The principal business passing in the heavy-chemical market continues to be on prompt or near forward account, together with deliveries against contract. However, in both these branches there is a good average demand, and export trade, although somewhat quieter, is nevertheless of a very fair volume. Values continue on the firm side, and do not fluctuate greatly.

SULPHATE OF AMMONIA has been in steadier demand, and not only have values been fully maintained, but they are in fact a shade higher. Present nearest figures are: Beckton, 25-per-cent., nominal; London terms, 12l. 5s.; Leith, 13l. to 13l. 2s. 6d.; October-December delivery, 13l. 7s. 6d.; Liverpool, 12l. 18s. 9d.; and Hull, 12l. 16s. 5d.

LEAD-PRODUCTS continue very firm, and there is a good demand. Sheets and pipes have been advanced. Present prices: White lead, 26l. 10s.; red lead, 22l. 10s.; pig lead, 21l. 5s.; sheets, 25l. 10s.; and pipes, 26l. per ton Tyne.

BICHROMATES OF POTASH AND SODA are inclined towards the quiet side, but prices are fully maintained. Bichromate of potash, English and Scotch deliveries, 3½d. per lb., less 5 per cent., and export, 3½d. per lb. net f.o.b. Glasgow. Bichromate of soda, English and Scotch deliveries, 5d. per lb., less 5 per cent., and 2½d. per lb. net f.o.b. Glasgow for export.

Manchester Chemical Market.

August 12.

In heavy chemicals fair deliveries have been made during the past week on contract account, but new business on account of the holidays in the Lancashire cotton districts has only been of moderate extent. Returns of exports for July are very satisfactory. A feature of the past two or three weeks has been the continuous advance in sulphate of copper, following on what appears to be a "boom" in the raw metal, but there are doubts in certain quarters whether this will be maintained. Current quotations are about 22l. 12s. 6d. to 22l. 17s. 6d. per ton for best brands delivered Manchester. Forward asking prices are about 15s. more. The low prices of white powdered arsenic have led to a better demand, and the range is about 15l. to 16l. per ton, according to package. Bleaching-powder is 5l. 7s. 6d. to 5l. 15s. per ton for softwood casks, and white caustic soda 8l. 10s. to 10l. 5s. per ton, according to strength, on rails. Brown acetate of lime is quoted at 7l. 15s., and grey 12l. 7s. 6d. c.i.f.; Epsom salts, 65s. to 75s.; soda crystals, 42s. 6d. to 45s.; nitrate of lead, 28l. to 28l. 10s.; loose lump alum, 6l. 2s. 6d.; and ground in bags, 7l. 2s. 6d. per ton. Coal-tar products remain steady. Pitch has an upward tendency. Benzols are firm, and for motor purposes demand continues to increase. Prices for 90's range from 1s. 3½d. to 1s. 4d. per gal. Spot demand for carbolic acid is quiet. Sulphate of ammonia is steady at 12l. 10s. per ton f.o.r. Manchester.

Continental Drug and Chemical Markets.

BALSAM PERU.—For some time past there has been an urgent demand; plenty of goods have accumulated in the hands of importers, however, so that in some quarters lower prices have been mentioned.

CANDELLA WAX has attracted more inquiry of late, and some parcels were taken off the market at m.175 to m.180 per 100 kilos., according to quality.

CARNAUBA WAX.—Large lines have lately changed hands. Fatty grey is offered at m.297.50 and current grey at m.307.50

per 100 kilos. The large quantities now expected to arrive are said to have already gone into firm hands, and should therefore hardly affect the market.

CEVADILLA.—The outlet now leaves much to be desired, and good qualities are being offered at m.115 per 100 kilos.

COCAINE.—The tendency has been rather more subdued, but there has been no change in prices. Larger quantities of raw material should again soon become available in consequence of the larger receipts advised for July, which for Hamburg alone exceed 2,000 kilos. At any rate, the slight advance in hydrochloride has been checked. The future course of the market is chiefly subject to developments in raw material.

Dextrin.—In all potato-products the consumptive demand is generally confined to immediate needs, pending developments as regards the potato-crop, the yield of which, according to recent indications, promises to be a fair average. As there are, however, no large stocks of dextrin available, current needs should prove sufficient to hold the price where it is at m.34 to m.35 per 100 kilos.

ERGOT remains quiet, with limited business. Russian on the spot (Hamburg) is held at m.5.75, and for shipment at m.5.40 per kilo, net cash. The first offers of new Spanish crop are very dear at m.700, and buyers remain indifferent. Nothing has yet transpired as regards the size of the Spanish crop.

GLYCERIN.—According to Marseilles advices, the fall in prices noted in June accentuated itself in the first half of July. On the Paris Bourse the price for saponification glycerin was reduced on July 16 to fr.147.50, and for 80-per-cent. crude to fr.122.50, which constituted the extreme lowest record of the year for such qualities. These quotations were officially retained on July 23 and 30. Spot delivery weighed on the market, and the fact deserves mentioning that raw glycerin for early delivery has even been offered and sold at lower rates than in Paris. Transactions have taken place at fr.146.25 and fr.119.25 respectively, but only for small quantities not exceeding 15,000 kilos. Later a strong demand set in for next year's delivery, and large quantities changed hands at constantly advancing prices—viz., fr.147.50, fr.150, and even fr.152.50 for saponification qualities, and fr.125, fr.127.50, and fr.130 for 80-per-cent. crude glycerin. The bidding-up of prices for deliveries in 1914 has naturally stiffened the market for near deliveries, so that at the end of July fr.150 and fr.125 respectively were readily paid for spot parcels. Although the market closed the month nominally cheaper by fr.2.50 for saponification qualities and fr.7.50 for 80-per-cent. against the previous month, the position early in August was precisely identical to what it was early in July, quotations standing thus: Saponification glycerin, August-December delivery, fr.147.50 bid, and fr.150 sellers, with 1914 delivery quoted fr.152.50; 80-per-cent. crude, August-December, fr.120 to fr.122.50 bid and fr.125 sellers, with 1914 offered at fr.130.

English Herb Crops.

Messrs. J. & G. Miller write that the Mitcham herb-crops will again be a disappointment to the growers this year.

PEPPERMINT has improved considerably since the heavy rains which fell on July 15 and 16 last, after suffering severely from drought during the previous six weeks, when only just over half an inch of rain fell during that period, the average for that time being nearly four inches. Cutting of the crop has already commenced, as the plant is attacked by rust. The acreage this season is very small, many of the old plantations having entirely failed, and very few new ones have been planted out during the past three years. Prices should rule very high, but we do not expect much change from last season, as the extensive adulteration taking place will keep prices down much below what they ought to be.

LAVENDER.—Very little will again be distilled, practically all the herb being disposed of in bunches at Covent Garden.

CHAMOMILES show an extended acreage this year, but the yield of oil is always small in a dry season.

Messrs. W. & A. W. Wood write:

PEPPERMINT.—The crop this year will be late and below average. The plants came up badly in the spring, and, as we experienced nearly eight weeks without rain, they made little progress, and scarcely any fresh planting took place. With old mint distinctly patchy, and no means of planting out with young, we do not remember a more exasperating season; but, given favourable weather at harvest, the yield should be augmented, and help to retrieve the present unfavourable position.

LAVENDER.—A good crop with fair-sized bloom. Covent Garden bunch-trade has been exceptionally good, and consequently there is no inducement to distil oil which is difficult to sell at even 40s. per lb., when a price calculated at about 50s. is realised if sold in bloom.

CHAMOMILES looks excellent, and should prove a fair average crop.

Sicilian Sulphur.

An advice from Sicily states that the exports during the first six months of the current year amounted to 263,583 tons, as compared with 283,328 tons for the corresponding period of 1912. The production for the same period amounted to 164,947 tons, against 174,663 tons, and the stocks on June 30 were 346,740 tons, against 434,691 tons on June 30, 1912. The above figures show that the exports were 19,745 tons less, the production 9,716 tons less, and the stocks 87,951 tons less. The diminished production is partly due to the inactivity of four important mines and the scarcity of labour due to emigration from Sicily. The superior grades of sulphur are limited, a large proportion being current thirds of dark colour, which is difficult to sell for export. The Consortium has already sold more than one-third of the production up to the year 1918, and, pressure being brought to bear on the administration from the producers, prices were advanced all round by 20 centimes per 100 kilos., and sales for forward delivery suspended.

Russian Soda Industry.

The output of carbonate of soda is increasing steadily year by year. The amount consumed in 1912 was 5,716,000 pouds (1=36 lb.), as compared with 5,342,000 pouds in 1911. Almost the whole of this was manufactured by two firms, who work in unison, their principle being to increase the use of soda by lessening its price. Thus in Moscow the prices have been: 1910, 1r. 23c. (amount sold 4,913,000 pouds); 1911, 1r. 20c. (amount sold 5,342,000 pouds); 1912, 1r. 16c. (amount sold 5,716,000 pouds); 1913, 1r. 13c. The amount of caustic soda used during 1912 was 3,130,000 pouds, almost the same as in 1911; it was manufactured by four firms, and the price in Moscow varied from 2r. 55c. to 2r. 60c. Bicarbonate of soda is manufactured by two firms only, the amount used in 1911 being 326,000 pouds and in 1912 375,000 pouds, the price varying from 2r. 10c. to 2r. 15c. The rapidly growing demand for caustic and other sodas has induced a group of capitalists, representing the syndicated soda producers, to construct a new soda-works with a large capacity, in the Karkoff Government. A share company is being formed for the purpose, to which each member will contribute capital proportionate to the quantity of soda he supplies to the market.

VERONAL DEATH.

The inquiry concerning the death of Mrs. Horne, of Putney, who died after taking veronal in mistake for trional tabloids was resumed and concluded by Mr. R. Henslowe Wellington (Deputy Coroner) this (Thursday) afternoon at the Wandsworth Town Hall (see *C. & D.*, August 9, index folio 257).

Evidence was now given by Mr. James David Rees, assistant to C. R. Toyne, Ltd., at 26 High Street, Putney. He said that he had only passed the Preliminary examination, and was not allowed to sell poisons, including trional and veronal, without the supervision of a qualified chemist. He remembered the maid coming to the shop with a bottle, the label on which read: "Veronal Tabloids." He accordingly went to a drawer, and, under the supervision of his employer, took out the only bottle of veronal they had in stock, and, after wrapping it up, handed it to the girl, together with the bottle she had brought. They only sold one bottle of veronal in about three months.

A Juror: Supposing I should stroll into your pharmacy and ask for veronal tabloids, would you warn me of the nature of the drug?—Certainly.

Did you warn this maid?—No, I knew her so well.

Mr. Chas. Robt. Toyne, the proprietor of the shop, said Rees had been employed by him for twelve years, and he had never known him to make a mistake. Witness saw him serve the veronal.

Dr. Ludwig Freyberger, pathologist and toxicologist, said that since the last hearing he had made an analysis of certain of the deceased's organs, and found traces of veronal; and, having regard to the condition of the kidneys, he was of opinion that the drug accelerated the death.

The Coroner, in summing up, commented on the similarity of the ending of the three words trional, veronal, and sulphonal, and said he thought it would be safe plan to have the letters preceeding "onal" printed in larger letters, as otherwise one was liable to pick up one drug for the other.

The jury, after retiring, returned a verdict of "Death by misadventure," and added that there was not sufficient evidence to show who was to blame for the deceased taking the veronal.

The Coroner: You mean it is not sufficiently clear as to how the veronal was introduced into the house?

The Foreman: Yes.



Memoranda for Correspondents.

All communications must be accompanied by the names and addresses of the writers, otherwise they cannot be dealt with. Queries by subscribers on dispensing, legal, and miscellaneous subjects connected with the business are replied to in these columns if they are considered to be of general interest.

Letters submitted for publication (if suitable) should be written on one side of the paper only. Their publication in "The Chemist and Druggist" does not imply Editorial agreement with the opinions expressed.

The Business Side.

SIR,—There are many good ideas in "Observer's" articles, and it does good to ventilate the subject. But many of his good points are spoilt by neglecting to be even decently fair. To begin with 'travellers' criticism. Quite a lot of travellers look upon retailers as their dumping grounds for their particular goods without any thought to overloading or selling something which may be quite unsaleable in a particular district. The grocer is, as a rule, more ready to take on new lines because such things are generally of the labour-saving kind, which makes rightly a strong appeal to women. Our particular trade is not nearly so suitable for "boosting" new lines: where a woman spends 10s. a week regularly with the grocer she would think 1s. at the chemist's was enough. Nobody need envy the poor woman who has to spend as much at the chemist's as at the grocer's, because that would point to heavy sickness of the breadwinner or ailing children. Travellers who suffer from a lack of perception and the presence of an overload of pushfulness cannot be expected to see that point; and you have to tell some of them pretty straight. I remember in 1906, when I tackled a three months' alterations after purchase of a business, I had to fall out with several travellers who could not even see for themselves that a new beginner, surrounded by joiners and electricians, with his fittings covered by tarpaulins, was safest in not buying new lines. Price-lists and display-cards are all alike, says "Observer." Well, what about it? The buying public are not running round all the other towns to see the window shows. Neither would it pay to be too original in your window shows simply because the proportion of trade left to us after the big City companies and stores get their share will not pay for too much originality unless it is carried out cheaply and economically, as chemists are real dabsters at doing. The drapery bargain sales are no good to chemists. I question if the game is not nearly played out by the draper himself. Handbills and many other forms of advertising are wasteful and overdone. A great deal depends on sizing up your district; playing up to (or down to) what the people seem to expect of you; the past history and repute of your business. "Observer's" remarks on salesmanship are a positive danger if taken too literally. The City man asking for a shaving-soap needs special treatment—quick service, no wrapping, and quick change. If you try that on your next customer you will offend for a dozen reasons. Then quite 50 per cent. of customers have to be asked two or three times before they will tell you what they want instead of walking right in and giving their orders. A City customer like "Observer's" is on a level with the man who leaves a restive horse at your door. He should be attended to "instantly" to prevent any chance of a street accident, no matter how many customers are waiting. But intelligent assistants who can see that sort of thing are as scarce in the drapery and grocery as in the drug trade. And until we alter our education system by some new Montessori or other method to bring out or create initiative, then we must put up with the incompetents who form 75 per cent. of assistants in every city and town in England. "Customers do not want their original inquiry repeated after them," says "Observer." In the case of the City man I agree. But what about the careless people

who jabber about oxalic acid for the baby's eyes, or the bright boy who says "Threepeno'th o' allaba"? and after you repeat it about four times you find he means hellebore. A careful chemist will lay down a rule to his assistants that when in doubt they must repeat the inquiry, and, of course, being always in doubt, they always repeat or always forget. The chemist's business stands apart. We must not be too inviting or we shall simply create a nation of drug-takers. Much married misery and not a few bankruptcies would be avoided if drapery shops were not quite so inviting to the female mind.

JAY MACK. (167/43.)

SIR,—I have read the second article by "Observer" on "retailing methods," and must disagree with him in his remarks about drapers. I accompanied my wife recently into one of the largest London stores to make some purchases, and here is my experience. We first went to the "bargain" department; here we bought an article value 3s. 6d., and this is the "fuss" our 3s. 6d. caused:

1. The assistant (or expert salesman, if you like) had to fumble through ten different boxes before he could find the article required—i.e., five minutes wasted.

2. The article, on being found, was noted on a slip with the amount—another minute and a half wasted. The slip was handed to us with directions to take it to the desk and get a receipt—another five minutes wasted, as we had to take our turn behind several other customers.

3. Money paid, receipt and number of our parcel given to us with directions to go to another counter, where it would be ready. On going to the other counter for our parcel, we had to wait behind seven other persons in turn, and then the parcel was not ready; in all, it took nearly fifteen minutes from the time the article was sold until we could leave the department with our purchase—a cap.

I hope this experience of mine will show "Observer" that if he observes others besides chemists he will find that he could purchase a dozen sticks of shaving soap—and perhaps shave as well—while waiting for his purchase in some of the world's largest stores. I have made purchases in a great many "up-to-date" stores, and fail to see any great powers of salesmanship displayed. My experience is, in the average good-class chemist's shop, you can get as well served—and as quickly—as in the greatest store.

Yours truly,

PERPLEXED. (168/6.)

"Liq. Carbonis Detergens."

SIR,—I have read in your issue of August 9 (index folio 245) particulars of "A very important circular to Panel Doctors," in regard to prescriptions and other subjects, issued by the County Medical Committee of Kent. In the general instructions the following statement is made regarding prescribing:

"A drug ordered by its proprietary name costs much more than when ordered by its B.P.C. name."

In this connection, therefore, it may be interesting to send you an extract from a letter received from one of the leading medical men at Margate (Kent) during the past week:

"*Re Liquor Picis Carbonis.*"

"There is as much difference in this preparation and your preparation as there is between chalk and cheese. Yours is a delightful, refreshing preparation to use, and gives good clinical results. I will not say my opinion of the B.P. preparation."

Comment surely is unnecessary.

Faithfully yours,

WRIGHT, LAYMAN & UMNEY, LTD.

JOHN C. UMNEY, Managing Director.

[It will be remembered that Dr. Norman Walker, in his evidence before the Select Committee on Patent Medicines, said: "I frequently order Wright's Liq. Carbonis Detergens, because there is nothing like it in the Pharmacopœia."—Ed.]

Insurance-prescription Pricing.

SIR,—Regarding the pricing of Insurance prescription ingredients to the nearest $\frac{1}{4}$ d. up or down, this is worked in a most unfair manner. Why should any small quantity of stuff be given away? I notice in my account that, from 25 $\frac{1}{2}$ l., nearly 1 $\frac{1}{2}$ l. has been deducted because, where an ingredient was half-way between two halfpennies, I took it to the higher in each case; the Pharmaceutical

Standing Committee, who checked for this county, with a zeal for pharmacists (no doubt anxious that doctors should have as much of the floating 6d. as possible), took it to the lower in each case. Thus 5ss. quin. sulph., which I priced at 1 $\frac{1}{2}$ d., they knock down to 1d. each time. The schedule says the nearest $\frac{1}{2}$ d. up or down, but the "square" checker, apparently adds, "when equal distance, always to the nearest down."

Yours faithfully,

Milford Haven.

J. H. LLEWELIN.

Rural Areas.

SIR,—My Insurance dispensing account was 32s. 4d. for the first quarter, 42s. for the second; this with an insured population within three miles of the village where I live of 1,500 inhabitants. The dispensing I find is still done on the old club lines; the insured are not obtaining "the best drugs" as promised by Mr. Lloyd George. It is the village chemist, who, like myself, never sees a local prescription, who should do the business. Will no one advocate the cause of the country chemists, or are we to reap no benefit from the National Insurance Act? The townsmen were anxious to have our support when demanding our rights under the Act, but now, while they enjoy the result of these efforts, they forget the country chemist, to whom the Act is almost a dead letter.

VILLAGE CHEMIST. (171/59.)

Dispensing Notes.

This section is for the discussion and solution of dispensing problems and prescriptions submitted by "C. & D." readers. We are always pleased to receive the opinions of readers for publication. "The Art of Dispensing" ("C. & D." Office, 6s.) is the standard book of reference on this subject.

Hamamelin Suppositories.

An *Old Hand* (91/19) writes that in making hamamelin suppositories much depends on the brand used. There are two types of hamamelin on the market, a brown powder and a green powder. The former contains a large proportion of tannin, but is very hygroscopic, and mineral matter is frequently added to counteract this. In one sample examined, of the brown variety, sodium chloride was present to the extent of about 16 per cent. The green variety appears to contain no added mineral matter, and it is non-hygroscopic. In criticising methods, therefore, it is desirable to keep in mind the kind of hamamelin employed.

Legal Queries.

Before writing about your difficulty consult "The Chemists' and Druggists' Diary," 1913, pp. 211-242 and pp. 457-459, where most legal difficulties are anticipated.

Ajax (168/11), who lives in Ireland, sent his two daughters to school in England, and expected them home on a certain day. The school rendered an account for "extras," and "Ajax" requested particulars of one of the items. The children were detained for seven days, and a wire was received from the school stating: "Send me £ s. d. to enable me to carry out your wishes." After seven days "Ajax" sent a cheque for the full amount. As soon as the girls had started home he stopped payment of the cheque, pending receipt of the particulars asked for. He now wishes to know whether he has any remedy for all the trouble and indignity he has suffered? ["Ajax" does not appear to have suffered any pecuniary damage, and does not seem to have any claim in respect of the trouble and indignity he has experienced.]

Limited Co. (164/50).—(1) PRIVATE LIMITED COMPANIES are not required to send a balance-sheet to Somerset House annually. Section 22 (2) of the Companies Consolidation Act, 1907, provides that a private company shall not be required to forward or to file the report required under Section 12 of the Companies Act, 1900, which report refers to the total number of shares allotted, the total amount of cash received by the company in respect thereof, an abstract of the receipts and payments of the company, the names, etc., of the directors, auditors, manager, and secretary, and particulars of contracts. In no case is any company, whether public or private, required to lodge at Somerset House a statement of profit and loss. (2) It is quite legal for a limited company carrying on the business of drug-stores to use the title of "Chemist," providing the provisions of Section 4 of the Poisons and Pharmacy Act, 1908, are conformed to. For this see *C. & D. Diary*, p. 215, under "Companies."

Miscellaneous Inquiries.

We do not undertake to analyse and report upon proprietary articles, and when samples are sent particulars should be supplied to us as to their origin, what they are, what they are used for and how.

We do not as a rule repeat information which has been given in this section during the past twelve months, as it occupies space which can be more profitably utilised for other information. In such cases the numbers are mentioned, and if querists cannot refer to these they may obtain the numbers from the "C. & D." Office at the published prices, usually 6d.

O. J. P. (151/71).—BOOKS ON DISINFECTANTS.—In addition to the books mentioned in the *C. & D.*, August 9, index folio 264, are the following: Kingzett's "Nature's Hygiene" (Baillière, Tindall & Cox, 7s. 6d.) and Christian's "Disinfection and Disinfectants" (Scott, Greenwood & Co., 5s.).

F. I. A. (143/41).—COMPLEXION AND SKIN-CREAM.—This correspondent writes: "I have been experimenting with the formula written in the *C. & D.* by a correspondent, dated January 25, 1913, and headed 'Evolution of a Speciality.' This turns out beautifully, but I cannot get it to set hard enough to put up in pots, tins, etc. To the formula given I have added a few ingredients, such as a trace of boric acid, lysoform, aq. laurocerasi, etc. Whether these retard the setting, I don't know, as the cream is perfect in every way. If, in your opinion, these articles would have no effect in this way, would it be permissible to increase the quantity of wax for potting purposes?" [The formula referred to is as follows:

Lard	...	...	...	...	...	3liiss.
White wax,						
Powdered soap,						
S.V.R.	...	...	...	...	of each	3ij.
Distilled water	...	...	...	...		3xvj.
Otto of rose	...	...	...	...		mx.
Ess. oils of almonds, cloves, and						
rosc-geranium	...	...	...	...	of each	mv.

This produces a nice smooth cream of the proper consistence for packing in tubes, but if something stiffer is required for putting up in pots the formula may be modified in this way:

Reduce the lard to 1 oz., the distilled water to 12 oz., and increase the white wax to 4 oz.

This produces a cream of the consistence of a cold-cream made with borax, and sets in much the same manner, readily liquefying on the skin and rubbing in without leaving any trace of stickiness or grease. Owing to the large amount of wax in the formula, however, great care is necessary in order to produce a perfectly smooth and satisfactory preparation. When the solids and the water have been mixed hot in a previously heated mortar, the cream should be vigorously whipped until cold, not merely stirred. An egg-whisk is very suitable for this, and if this is done thoroughly the result will be a white creamy product of the nature of lin. pot. iod. c. sapone. The addition of the S.V.R. will reduce the extreme frothiness, and the cream when potted will not then shrink in the pots on keeping. Aq. laurocerasi, lysoform, carbolic acid, etc., may be added in small quantities without altering the consistence, but the addition of 3 per cent. of boric acid seems to upset the balance of the preparation, producing a stiff granular paste from which the water separates.]

J. S. P. W. (155/29).—REMOVING TATTOO-MARKS.—See *C. & D.*, August 10, 1912, index folio 272, where details are given of five methods.

C. T. N. (153/72).—You cannot remove entirely turpentine which has been accidentally added to glycerin. Heating on a water-bath for some hours will dissipate most of the turpentine, but the trace that remains behind is sufficient to communicate its characteristic odour and flavour.

F. H. D. (149/5).—CHIMNEY-CLEANER.—It is impossible for us to say whether you are infringing a particular patent for a chimney-cleaner without further information which would enable us to refer to the patent specification to see what claims the inventor makes.

G. & Co. (151/23).—COMPLEXION-WAX.—We do not know the composition of the proprietary article to which you refer. A formula for complexion-wax was published in the *C. & D.*, August 10, 1912, index folio 272.

J. F. W. (157/27).—It is paraffin wax which is employed for impregnating the paper used in making vessels for holding cream. The exact process of manufacture we are not

acquainted with, but heat is employed for impregnating the paper with the paraffin wax.

J. W. H. (136/61) has received a prescription ordering salol in kaolin capsules. We think there is little doubt but that the prescriber intended to order keratin, although he denies it, but confesses that the purpose is to delay the action of the salol until it reaches the intestines, which is what keratin is employed for. We have not heard of kaolin capsules.

B. A. E. (121/44).—FRUIT-BOTTLING SYRUP is used in two strengths: Light, made by dissolving 2 lb. of sugar in 64 oz. of water, bringing to the boil and skimming; and heavy, made by dissolving 5½ lb. of sugar in 64 oz. of water.

W. W. (162/71).—The proportion of sulphate of copper required to kill ALGÆ in PONDS AND LAKES is one in a million. The copper sulphate is absorbed by the algæ in the course of three or four hours, with the result that none is found in the water if the above proportion is not greatly exceeded. The usual way of getting the sulphate in is that which you suggest—namely, to fill a bag with the sulphate in large crystals, attach it to a boat, and drag it through the lake. You can calculate the amount that is likely to be required from the area and depth of the water. There has been no instance in which cattle have been injured by the copper sulphate used properly. As the cattle only drink at the edges, and the sulphate should be dragged through the deepest part of the lake, it is not at all probable that there would be any injury to them.

C. M. (Ceylon) (162/22).—REMOVING TASTE FROM RUBBER RINGS USED IN AERATED-WATER BOTTLES.—The two methods employed are: (1) Dissolve sodium metasilphite 4 oz. (or add calcium bisulphite solution 10 oz.) to 10 gals. of water, and soak the rubber rings in this for an hour or two. Then wash with cold water, then in soda solution (1 oz. of washing soda in 1 gal. of water), and finally in clean water. (2) Cover the rings with water, add a few ounces of burnt sugar, and let them soak for a few days, stirring them up occasionally with a stick. Then wash with water, and the rings are ready for use.

T. M. (165/46).—(1) PHENOLPHTHALEIN as an aperient.—A good summary of the discovery and uses of phenolphthalein as a purgative was published in the *C. & D.*, November 29, 1902, p. 908, and since that time we have given several formulæ embodying the use of that chemical in tablets and liquid preparations. The dose for children as an aperient is ¾ to 2½ grains. It was stated in the "British Medical Journal" some years ago that in those prone to piles this drug is apt to bring on the attack. That is the only objection we remember to have heard against the pure product. (2) DEVELOPING THE BUST.—We do not know what preparation is referred to in the booklet you send. As it is an internal medicine it may be ext. gossypii sem. pulv., which is employed as a galactagogue. One form is lactagol, the makers of which are Messrs. E. A. Pearson & Co., 49 Watling Street, London, E.C.

K. Bros. (163/38).—BLACK-BOOT POLISH containing beeswax.—The following is a formula such as you require:

Beeswax	...	...	...	...	15 parts
Hard soap	...	...	...	...	5 parts
Turpentine oil	...	...	...	...	40 parts
Water	...	...	...	...	40 parts
Nigrosin	...	...	...	...	a sufficiency

You should also read the article on boot-polishes which appeared in the *C. & D.*, May 24, index folio 772. A series of fifteen recipes was given in the *C. & D.*, August 27, 1910, index folio 354.

Retrospect of Fifty Years Ago.

Reprinted from "The Chemist and Druggist," Aug. 15, 1863.

Graham's Researches on the Molecular Mobility of Gases.

The Master of the Mint, in a paper lately read before the Royal Society, describes the results which his renewed investigation regarding the diffusion of gases has afforded, and expounds certain speculative ideas on the constitution of matter which are in harmony with these results. The paper is a worthy sequel to that on Liquid Diffusion, and will increase the reputation—if that be possible—of our great Chemist. We have only space for a brief notice of those portions of the paper which are interesting in a practical point of view; but we would strongly advise the more scientific of our readers to master the theoretical conclusions at which Mr. Graham has arrived.

UNQUALIFIED Assistant (24), married, good appearance and address, good Dispenser, Salesman, Photography, first-class Midlands and London experience, requires change, seaside, South Coast; wages 45s. weekly. Apply, "Pyramidon" (188/2), Office of this Paper.

UNQUALIFIED Assistant; 35; excellent experience and references; capable Dispenser, Counterman, etc.; disengaged September 1. "D," 4 Highdown Road, Hove.

UNQUALIFIED; Locum, Assistant, Manager; Dispensing, Prescribing, Photography; qualified for Insurance; sound experience. 192/31, Office of this Paper.

UNQUALIFIED (24), tall, energetic, speaking German, desires permanency. "F. P.," c/o Abel & Co., 108 Queen's Road, Baywater, W.

UNQUALIFIED (34), married, tall, desires permanency as Assistant or Branch Manager; thoroughly experienced; good references. "H.," 155 London Road, Croydon.

UNQUALIFIED; varied experience, Dispensing, Counter, Prescribing, Photography; fluent French; tall; 35 years; London preferred; married; disengaged shortly; permanency preferred. 193/21, Office of this Paper.

YOUNG Lady desires situation as Junior; Counter, Packing, Stockkeeping; provinces preferred. 188/20, Office of this Paper.

YOUNG Lady, Minor qualification, desires post in Hospital or similar institution; permanency (preferred) or Locum. Miss Nunn, 57 Crouch Street, Colchester.

WHOLESALE.

Price lists, trade circulars, samples, and printed matter can in no case be forwarded.

ADDITIONAL Agency required by Traveller calling upon Chemists and Doctors; part expenses and commission; North-Western Counties. "Semper" (190/24), Office of this Paper.

ADVERTISER (28) desires responsible position with good house as Representative; intimate knowledge of Retail trade requirements. Apply, "Competent" (189/30), Office of this Paper.

ADVERTISER, with large connection, wishes to Represent Malt Extract firm in London and district. "Diastase" (191/6), Office of this Paper.

ASSISTANT (21), Sundries' Counter, 7 years in a leading house, desires better berth. "R. H.," 100 Boyson Road, Camberwell, S.E.

ASSISTANT; age 31; thoroughly experienced, Wets, Drys, or could supervise Packed Goods and Speciality Department; excellent references. 193/19, Office of this Paper.

COMMISSIONS required for London; Perfumery, Soaps, Lozenges, Drugs, or Packed Goods; established connection. "Economy" (191/66), Office of this Paper.

LABORATORY Manager.—Qualified Chemist, with long experience in Manufacturing and Analytical work, desires responsible position; home or abroad. 190/20 Office of this Paper.

LEEDS and Districts.—Young gentleman wishes to Represent well-established house having connection with Medical Men; 6 years' first-class Wholesale Drug experience, including Clerical and Medical; highest references; motor-cycle. "Statim" (193/6), Office of this Paper.

PORTER, age 35, well recommended, desires situation; Wholesale or Retail. 171/31, Office of this Paper.

REPRESENTATIVE can influence business in any branch of the trade; 12 years' London connection. "Pharmakos" (191/66), Office of this Paper.

SALES and Advertising Manager.—Qualified Chemist, resident in London, is open to take charge of the marketing of a Household, Medical, or Chemical Speciality; exceptional experience obtained with first-class Advertising and Sales Agency; knowledge of town and country from actual working; able to write up press and general advertising matter and develop sales on sound, modern lines; could give Manufacturing help if necessary; excellent references; would consider Sales Agency from London office for good-class Proprietary. Address, "Progress" (193/39), Office of this Paper.

SPECIALITE as extra line; sole Travelling rights preferred; big territory. "Commission" (191/39), Office of this Paper.

TABLETS, Compressed; thoroughly experienced in all its branches; permanency desired; excellent references. A. E. Harratt, 27 Ross Walk, Leicester.

TRAVELLER, experienced, wants Agencies with houses of repute; salary basis. Apply, 188/33, Office of this Paper.

TRAVELLER, well known (30), tall, desires situation September; Sundries, Proprietary, Packed Goods; London, Midlands, South Coast. "Alpha," 145 Felixstowe Road, Lower Edmonton, N.

WELL-KNOWN traveller just disengaged; good connection among Chemists in Midlands and Eastern Counties; could handle Soap, Perfumery, or Sundries. 190/38, Office of this Paper.

YOUNG man (24), abstainer, seeks permanency; Pills or Granulating; disengaged. "Gamboge" (186/18), Office of this Paper.

SITUATIONS WANTED

(Colonial, Indian and Foreign).

1s. for 12 words or less; **6d.** for every 10 words beyond, prepaid. The Advertiser may, if preferred, have replies addressed to this Office, and forwarded on payment of an additional charge of **6d.**

This heading is reserved for assistants seeking situations in the British Colonies, India, and Dependencies or elsewhere abroad.

ENGLISHMAN (23), serious, understanding and speaking fair French, desires situation on the Continent for or after middle of September; outdoors; Paris (environ), North France, or Belgium preferred if possible; used to first-class Family and seaside businesses; good all-round worker; Dispensing, Counter, Stock, Window-dressing, Photography. Marsh, 31 Queen's Gardens, Herne Bay.

QUALIFIED Assistant, age 24, desires engagement on Continent; good all-round English experience, provinces and London; modern Store experience; good appearance and address; slight knowledge of French; Season or permanency. 191/25, Office of this Paper.

RIVIERA, Biarritz, Colonies, etc. — Assistant (30), speaking French and English, well connected with the International Chemistry, and at present engaged by one of the best cosmopolitan Pharmacies, seeks season or permanent engagement. Robert, 4 Rue Ruysbroek, Brussels.

MISCELLANEOUS.

MCADAM & TUCKNISS, Sharedealers, Bank Chambers, Blackheath, S.E. Established 1898 Telephone 81 Lee Green.

SHARES FOR SALE (free of commission, subject).—200 Bovril Deferred, 8s. 4½d.; 20 Barclay & Sons £10 4½ per cent. Debentures, £8; 50 £1 fully-paid Ordinary and 125 Preference (12s. paid), bid wanted; 70 Parke's Drug 6 per cent. Preference, 12s.; 100 Molasine Preference, 10s. 3d.; 100 St. Ivel 6 per cent. Preference, 16s. 9d.; 300 Veno's Drug, 25s. (90 per cent. dividend paid in 5 years); 500 A. J. White, 7s. 4½d.; 200 New Transvaal Chemical Ordinary, 20s. 3d. (dividend last year 18 per cent.); 150 Wickens Pease £5 fully-paid Ordinary shares, 22s. 3d. (4 per cent. dividend paid last year).

WANTED (subject).—100 Lewis & Burrows Ordinary, 2s. 6d.; 200 Preference, 9s. 3d.

List of Shares for Sale and Wanted sent free on application. Every effort made to effect business for Buyers and Sellers in all Stocks and Shares. Bankers, London and County and Westminster.

H. E. CULLWICK'S CHATS ON DENTISTRY, No. 4.

Work executed in best style, in the promptest manner, and at lowest prices. Repairs and small cases sent back by return. Express posted whenever desired. Write to-day for price list to H. E. Cullwick, Dental Mechanic, North Street, Wolverhampton.

Showcases and Specimens supplied.

Established 1888.

MODERN BUSINESS METHODS

in advertising, ideas for new Specialties and Window Shows are essential to the present-day Pharmacist, and are what you get with my Business System. Particulars free. This month a Pharmacist renews for his 3rd year, another for his 4th, and another for two more years. The reason why—they are satisfied.

BILLYARD ALLISON, PHARMACIST, RETFORD.

SHOPFITTINGS, SECOND-HAND.—Complete Set, comprising 12 ft. Drug Fitting with Bevelled Glass Labelled Drug Drawers, Lockers, Poison Cupboard, Shelves and Cornice; 12 ft. Mahogany and Plate-glass Counter; Perfumery Case and Desk; Bent Plate-glass Counter-case, with display Shelves; 5/6 ft. Mahogany Wall Showcase; very handsome Dispensing Screen, Counter, and Sponge Case; complete set of Recess Labelled Shop-rounds, Poisons, Syrups, and Ungt. Jars; Counter Drawers; £70 the lot; all ready for immediate use. PHILIP JOSEPHS & SONS, 93 Old Street, London, E.C.

MAKE MONEY by advertising your Specialities; send for our new Mail-order list free, also specimens of new designs in Circulars; mutual Circulars supplied at 5s. per 10,000, carriage paid; low estimates given for Printing and Drafting Handbills, Booklets, etc. H. E. Fuller, Ltd. (formerly B. Whitworth Bird, Ltd.), Advertising Specialists, Colegate Street, Norwich.

SECOND-HAND CHEMISTS' FITTINGS.—We have an exceptionally fine selection of these in all sizes; prices are right and goods are in first-class condition; we shall be pleased to supply particulars and prices. Call or write, RUDDUCK & CO., 262 Old Street, E.C.

EXTRAORDINARY BARGAINS.—Chemists' good second-hand Fittings to clear: 12 ft. Drugfitting, 6 ft. Dispensing Screen and Counter, 8 ft. Serving Counter, 2 ft. Nest Counter Drawers, 6 ft. Wall-case, 6 ft. Mahogany Bent Plate-glass Counter-case, the lot £39 10s.; also complete set of Fittings for large Store Chemist; cheapest house in the trade for Structural Alterations, Shopfronts, Window Enclosures; Estimates free. H. Mills, Chemists' Shopfitter, Shopfront Builder, Steam Works, 163.5 Old Street, London, E.C.

BEST cash price for all old Cameras, any make, also all old Photo goods, no matter how damaged; any kind you may have send them along; cash will be sent same day; no waiting; we buy all and return nothing. S. E. Hackett, 23 July Road, Liverpool, E.

TO Wholesale and Manufacturing Chemists.—Proprietary rights in a well-known and advertised Patent Medicine for Disposal either outright or subject to a royalty on sales. Apply, "J. M." (169/31), Office of this Paper.

EXCHANGE COLUMN

One halfpenny per word with name and address. One penny per word if we register the address and attach a number.

No advertisement inserted for less than 5d.

FOR DISPOSAL.

OPTICAL AND PHOTOGRAPHIC

PLATE "Hanover" de Luxe reflex camera, Mackenzie slide, with 12 envelopes; Goetz Color lens, Lumière's colour screen and holder, case, etc.; just as new; accept £9 10s., or exchange for good pair of binoculars. BUCKLEY, Albert Street, Lees, near Oldham.

MISCELLANEOUS.

TO clear, 150 platinum pin teeth at 3d. each, and 2 lb. of Samson rubber. 188/250, Office of this Paper.

WANTED.

B.P., any condition, for cash; also small emulsifier for C.L.O. emulsion. Send particulars to "R. M. E.," Drug Store, Docking, King's Lynn.

COUNTER, 14 ft., glass-fronted preferred, drawers behind. Height, width, price, MASSY, Chemist, Bolton.

OPTICAL books; Minor, Major, Chemists' books; send prepaid for valuation; cash offers per return. GOWRA, Bookseller, Waterloo, Liverpool.

"GUIDE TO PRELIMINARY EXAMINATIONS IN PHARMACY," ETC.—Many of our readers will be considering from time to time what to do with their sons, and in this connection may desire to ascertain the degree of difficulty of examinations for pharmacy, medicine, dentistry, etc. This little volume contains full information as to the regulations, together with sample papers and many useful hints on all the subjects given at the Preliminary examinations for these professions, and it is a book necessary to the intending competitor and useful to the parent seeking information.—*The Schoolmistress.*

Allenburyites at Play.

AN extremely pleasant function took place this (Thursday) afternoon at Ware, Herts, where the new sports ground and pavilion for the use of the employes of Allen & Hanburys, Ltd., at Ware, was opened by the venerable Mr. Cornelius Hanbury. The whole of the Ware staff (about 300 in number) was present.

In his opening speech Mr. Cornelius Hanbury expressed the pleasure he had in being present, and the hope that the staff at Ware would have much enjoyment and benefit in the new pleasure grounds and pavilion given them by the directors. As a young man he had not, he said, much time for sport or recreation of the kind they would have at Ware, but he reiterated the hope that all would take full advantage of the facilities offered for their benefit. He warned the younger members of the evils resulting from betting and drinking, pointing the moral with incidents that had come under his personal observation during his long career. Amid great cheers he then unlocked the door of the pavilion with a golden key which was presented to him.

Mr. Frederick J. Hanbury and Mr. J. Ruffle, F.I.C., spoke a few words, and then Miss Gregory Browne, on behalf of the women workers in the Ware factory; pre-



FOUR GENERATIONS.

sented Miss Hanbury with a gold brooch as a memento of the occasion.

This terminated the formal proceedings, and soon afterwards the special photograph (reproduced herewith) was taken by the C. & D. photographer. It represents four generations of Hanburys. Sitting are (reading from left to right) Mrs. Frederick J. Hanbury, her grandson Master John Capel Hanbury, Mr. Cornelius Hanbury, and Mrs. Capel Hanbury. The little girl is a great-granddaughter, Miss Joan Inman Franklin Adams. Standing behind are Mr. Reginald Hanbury, Mr. Frederick J. Hanbury, and Mr. Capel Hanbury. Truly a unique group.

The programme of sports included a 100-yd. handicap, a 70-yd. ladies' race, throwing the cricket ball, one lap comic costume race, 50-yd. potato race for ladies, kicking the football, and a one-mile handicap. The zest with which everyone entered into the sport augured well for the future welfare of the Association, of which Mr. W. Ralph Dodd is Chairman and Mr. H. W. Radford Hon. General Secretary. As showing the personal interest taken by the directors, it may be mentioned that Mr. R. J. Hanbury and Mr. F. C. Hanbury are Vice-Presidents, along with the heads of the departments at Ware. At the sports Mr. R. J. Hanbury acted as referee, while Mr. F. C. Hanbury was one of the judges.

